# Service Manu

Cassette Deck

Black Face Silver Face

Quartz-Locked Direct-Drive Cassette Deck with Metal Tape Recording Capability

This is the Service Manual for the following areas.

D ... For All European areas except United Kingdom.

B ... For United Kingdom.





#### **Professional Series**

#### **RS-M85 MECHANISM SERIES**

#### **Specifications**

Track system:

4-track 2-channel stereo recording and playback

Tape speed:  $4.8\,\mathrm{cm/s}$ 

0.035% (WRMS),  $\pm 0.10\%$  (DIN) Wow and flutter:

20 - 20,000 Hz Frequency response: Metal tape;

30 — 18,000 Hz (DIN)

 $30 - 17.000 \,\text{Hz} \pm 3 \,\text{dB}$ 

 $40 - 13,000 \, \text{Hz} \pm 3 \, \text{dB}$ (UVO)

CrO<sub>2</sub>/Fe-Cr tape; 20 — 18,000 Hz

30 - 18,000 Hz (DIN)

 $30 - 16,000 \, \text{Hz} \pm 3 \, \text{dB}$ 

20 — 16,000 Hz Normal tape:

30 - 16,000 Hz (DIN)

30 - 14,000 Hz ±3 dB

Signal-to-noise ratio: Dolby NR in; 69 dB (above 5 kHz)

Dolby NR out; 59 dB (signal level = max. record-

ing level, Fe-Cr/CrO<sub>2</sub> type tape)

Fast forward and

rewind time: Approx. 80 seconds with C-60 cassette tape

Inputs:

MIC; sensitivity 0.25 mV, applicable microphone

impedance  $400\Omega - 10 \,\mathrm{k}\Omega$ 

LINE; sensitivity 60 mV, input impedance  $68\,k\Omega$ 

Outputs:

LINE: output level 700 mV, load impedance

HEADPHONE; output level 140 mV, load

impedance  $8\Omega$ 

Rec/PB connection: 5 P DIN type; input sensitivity 0.25 mV,

 $85\,\mathrm{kHz}$ 

impedance 4 kΩ

output level 700 mV, impedance  $1.5\,k\Omega$ 

Bias frequency:

2-motor system Motors:

Capstan; 1-quartz control phase-locked DC

brushless direct-drive motor

Reel table; 1-DC coreless motor

2-head system Heads:

1-SX (Sendust Extra) head for rec/playback 1-sendust/ferrite double-gap head for erasure

Power requirements: AC; 110/125/220/240 V, 50-60 Hz

Preset power voltage; 240 V only for England.

Power consumption: 35 W

Dimensions:

 $9.7 \, \text{cm}(H) \times 45.0 \, \text{cm}(W) \times 40.3 \, \text{cm}(D)$ 

Weight:

10.5 kg

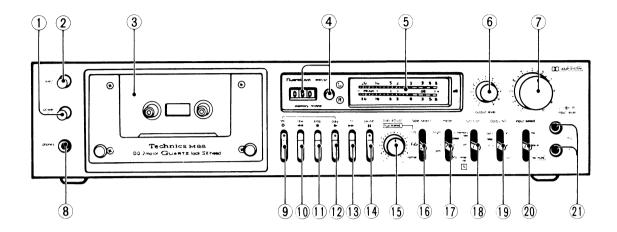
Specifications are subject to change without notice.

\* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

### **Technics**

Matsushita Electric Trading Co., Ltd. P.O. Box 288, Central Osaka Japan

# LOCATION OF CONTROLS AND COMPONENTS



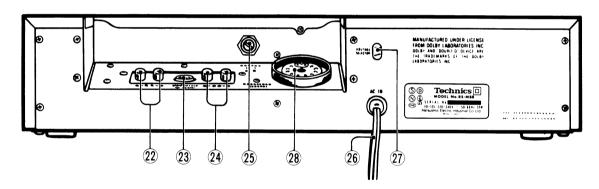
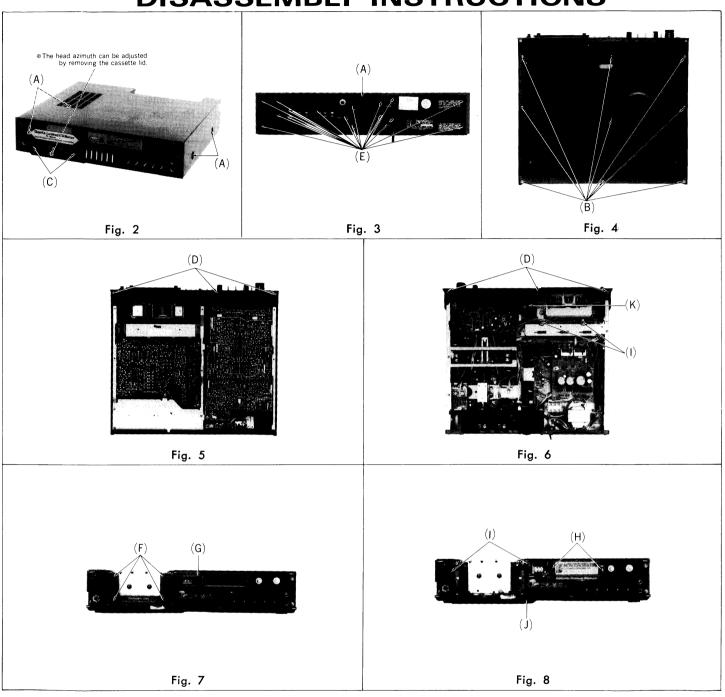


Fig. 1

- ① Power Switch (power)
- 2 Eject Button (eject)
- **③ Cassette Holder**
- **4** Tape Counter, Reset Button
- (5) FL (Fluorescent Level) Meters
- **6** Output Level Control (output level)
- ① Input Level Controls (input level)
- ® Headphones Jack (phones)
- Rewind Button (rewind) (◄◄)
- ① Stop Button (stop) (■)
- ② Playback Button with Playback Indication Lamp (play) (▶)
- (4) Pause Button with Pause Indication Lamp (pause) (11)
- (5) Bias-Adjustment Control/"Metal tape" selector (bias adjust) (pull Metal)

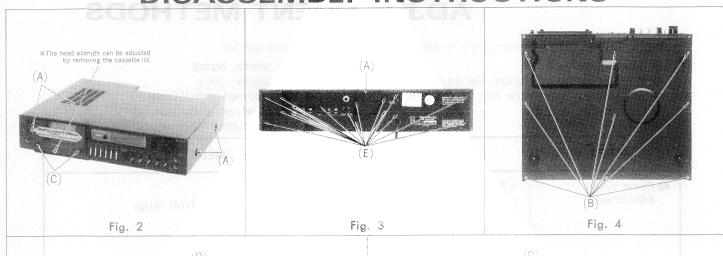
- (6) Tape Selector (tape select)
- 1 Meter-Brightness/Function Selector (meter)
- ® Function Selector (function)
- 19 Dolby Noise-Reduction Switch (Dolby NR)
- 20 Input Selector (input select)
- 2 Microphone Jacks (mic)
- 2 Line Output Jacks (LINE OUT) (R, L)
- 3 Record/Playback Connection Socket (REC/PB)
- 24 Line input Jacks (LINE IN) (R, L)
- (meter light)
- 26 Power Cord
- ② Voltage Selector (VOLTAGE SELECTOR)
- Remote-Control Connector (REMOTE CONTROL)

### **DISASSEMBLY INSTRUCTIONS**



Procedure	To remove ——.	Remove	Shown in fig. ——.
1	Case cover	• 5 black screws(A)	2, 3
2	Bottom cover	• 9 screws(B)	4
3	Front panel	• 2 cassette lid holding screws · · · · · (C) • 6 red screws · · · · · (D)	2 5, 6
4	Back cover	• 16 black screws · · · · · · (E)	3
5	Cassette holder	• 4 screws ·····(F)	7
5	FL level meter	• Meter cover · · · · (G) • 2 meter holders · · · · (H)	7 8
5	Mechanism	• 4 red screws ······(I) • 1 black screw ·····(J) • Tape counter belt ·····(K)	6, 8 8 6

## DISASSEMBLY INSTRUCTIONS



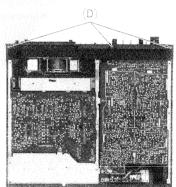


Fig. 5

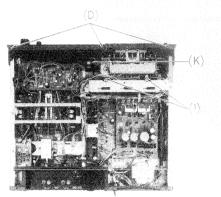


Fig. 6

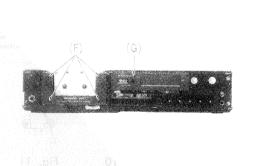


Fig. 7

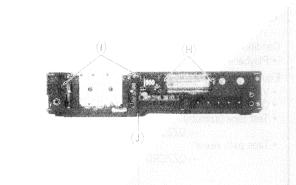


Fig. 8

Procedure	To remove .	Remove	Shown in fig.
100 <sup>380</sup> )	Case cover	· 5 black screws ·····························(A)	2, 3
2 Schreiber von erstellen	Bottom cover	9 screws(B)	4
3	Front panel	- 2 cassette lid holding screws machine (C) - 6 red screws(D)	2 5, 6
4	Back cover	• 16 black screws ·····(E)	7800000 3844 787
5	Cassette holder	• 4 screws(F)	7
5	FL level meter	• Meter cover • • • • • • • • • • • • • • • • • • •	7 8
5	Mechanism	4 red screws(1)     1 black screw(J)     Tape counter belt(K)	6, 8 8 6

### **MEASUREMENT AND** ADJUSTMENT METHODS

NOTE: Set lever switches and controls in the following positions, unless otherwise specified

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature:  $20\pm5$ °C ( $68\pm9$ °F)
- Meter
- Dolby

 Tape selector: Normal Input selector: Line in

Bias adjustment control: Center

ITEM	MEASUREMENT & ADJUSTMENT
NR switch: OUT	Input level control: Maximum
selector: Peak, dim	Output level control: Maximum

#### I. A Power supply +20 V adjustment adjustment 1. Connect voltmeter to the test point **W** on the power circuit board and read voltage. Standard value: +20±0.5V 2. If measured value is not in standard, adjust VR401 as shown in fig. 29. +5V adjustment 1. Connect DC voltmeter to the test point \( \mathbb{Y} \) on the power circuit board and read voltage. Standard value: +5±0.4V 2. If measured value is not in standard, connect the point A on the power circuit board as shown on page Takeup tension Mount cassette torque meter on UNIT 2. Place UNIT into playback mode and read takeup torque. Condition: 3. Measure several times and determine the mean value. \* Playback mode Equipment: Standard value: 34 ± 6 gr-cm \* Cassette torque meter (QZZSRKCT) 4. If measured value is not in standard, adjust VR601. Head azimuth Record/playback head adjustment adjustment 1. Test equipment connection is shown in fig. 9. Condition: 2. Playback azimuth tape (QZZCFM 8kHz). 3. Adjust record/playback head angle adjustment screw (B) in \* Playback mode fig.10 so that output level at LINE OUT becomes maximum. Fig. 9 Equipment: 4. Measure both channels, and adjust levels for equal output. \* VTVM 5. After adjustment lock head adjustment screw with lacquer. \* Oscilloscope Record/Playback Head \* Test tape (azimuth) Erase head adjustment ··· QZZCFM 1. Test equipment connection is the same above but use the \* Tape path viewer tape path viewer (QZZCRD) instead of test tape (QZZCFM). ··· QZZCRD Playback this tape. Fig. 11 3. Adjust screw (C) shown in fig. 11 so that the tape may not Fig. 10 get curled or malformed by tape guide of the erase head. 4. After adjustment, lock head adjust screw with lacquer. Tape speed Tape speed accuracy Condition: 1. Test equipment connection is shown in fig. 12. O \* Playback mode 2. Playback test tape (QZZCWAT 3,000 Hz), and supply playback signal to frequency counter. Equipment: Fig. 12 3. Measure this frequency. \* Digital electronic counter 4. On the basis of 3,000 Hz, determine value by following formula: \* Test tape · · · QZZCWAT $\frac{f - 3,000}{100} \times 100 (\%)$ Tape speed accuracy = 3.000 where, f = measured value5. Take measurement at middle section of tape. Standard value: ±0.4%

ITEM	MEASUREMENT & ADJUSTMENT			
	Tape speed fluctuation  Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:  Tape speed fluctuation = $\frac{f_1 - f_2}{3,000} \times 100$ (%) $f_1 = \text{maximum value}$ , $f_2 = \text{minimum value}$ Standard value: Less than 0.3%			
Capstan motor circuit adjustment  Condition:  * Playback mode  Equipment:  * VTVM  * Oscilloscope	A. Standard DC power supply voltage adjustment  1. Measure the DC voltage between central point of VR703 and (s) terminal of IC702 as shown in fig.13.  Standard voltage: 0±0.05 V  2. If measured voltage is not within standard, adjust VR703.  B. Phase lock point adjustment  1. Measure the DC voltage between (a) terminal of IC702 and ground as shown in fig. 14.  Standard voltage: 5.2±0.1 V  2. If measured voltage is not within standard, adjust VR702.  C. Position detecting signal output level adjustment  1. Connect oscilloscope to test point (T.P P·V).  2. Measure the peak-to-peak voltage of position detection signal of test point with the oscilloscope.  3. If the measured signal voltage is markedly different from the voltage shown in fig. 16, make the necessary adjustment with the VR701.  Fig. 16			
Playback frequency response  Condition:  * Playback mode  * Output level control ··· MAX  Equipment:  * VTVM  * Oscilloscope  * Test tape ··· QZZCFM	1. Test equipment connection is as same as "Head azimuth adjustment" but use the test tape (QZZCFM) instead of head azimuth tape (See fig. 9).  2. Place UNIT into playback mode.  3. Playback the frequency response test tape (QZZCFM).  4. Measure output level at 12.5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz and 63 Hz, and compare each output level with the standard frequency 315 Hz, at LINE OUT.  5. Make measurement for both channels.  6. Make sure that the measured value is within the range specified in the frequency response chart.  7. If measured value is not in standard, adjust VR1 (L-CH), VR2 (R-CH) (See fig. 29).			
© Playback gain Condition:  * Playback mode  * Output level control ··· MAX Equipment:  * V T VM  * Oscilloscope  * Test tape ··· QZZCFM	<ol> <li>Test equipment connection is shown in fig. 9.</li> <li>Playback standard recording level portion on test tape (QZZCFM 315 Hz), and using VTVM measure the output level at LINE OUT jack.</li> <li>Make measurement for both channels.</li> <li>Standard value: 0.66±0.05 V</li> <li>Adjustment</li> <li>If measured value is not standard, adjust VR3 (L-CH), VR4 (R-CH) (See fig. 29).</li> <li>After adjustment, check "Playback frequency response" again.</li> </ol>			

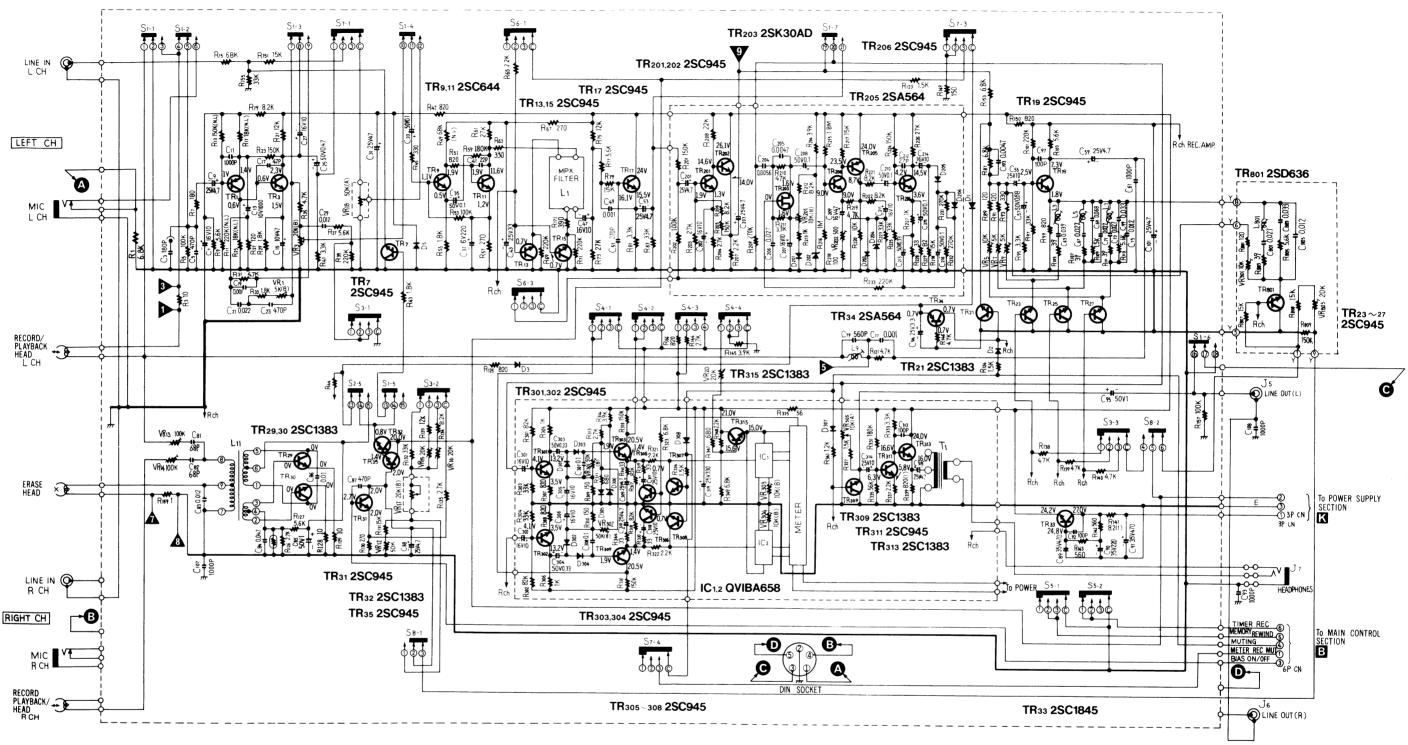
ITEM	MEASUREMENT & ADJUSTMENT
Bias leak Condition: * Record mode * Input level control ··· MAX Equipment: * VTVM * Oscilloscope	<ol> <li>Test equipment connection is shown in fig. 18 (See AMP circuit board on page 10).</li> <li>Place UNIT into record mode.</li> <li>Adjust trap coils L9 (L-CH), L10 (R-CH), so that measured value becomes minimum (See fig. 29).</li> <li>Make adjustment for both channels.</li> </ol> Fig. 18
● Erase current  Condition:  * Record mode  * Bias adjustment control  Center  Equipment:  * VTVM  * Oscilloscope	<ol> <li>Test equipment connection is shown in fig. 19.</li> <li>Place UNIT into record mode and measure voltage at test point 7.</li> <li>Determine erase current with the following formula.         Erase current (A) = Voltage across both ends of R159 1 (Ω)         Standard value: 95±5 mA (Tape selector ··· Metal)         Fig. 19     </li> </ol>
Condition:  * Record mode  * Bias adjustment control  Center  Equipment:  * VTVM  * Oscilloscope  * AF oscillator  * ATT  * Tast tape  (reference blank tape)  QZZCRA for Normal  QZZCRX for CrO <sub>2</sub> QZZCRY for Fe-Cr  QZZCRZ for Metal	A. Adjustment of metal tape  1. Test equipment connection is shown in fig. 20. 2. Place the test tape (QZZCRZ) in the cassette holder. 3. Press the record and pause buttons. 4. Set the tape selector to metal position. 5. Supply IkHz signal from AF oscillator through ATT to LINE IN. 6. Adjust ATT so that input level is -20 dB below standard recording level. 7. At this time, LINE OUT level indicates 0.066 V. 8. Record 1kHz and 13 kHz signals. 9. Playback and express in dB the difference between output levels of 13 kHz and 1kHz. 10. Make sure output level of 13 kHz is not within +1±2 dB compared with output level of 1 kHz. 11. If measured value is not within +1±2 dB, adjust VR13 (L-CH only).  8. Adjustment of normal tape 12. Set the tape selector to normal position (Test tape QZZCRA). 13. Change test tape to normal tape (QZZCRA). 14. Press the record and playback buttons. 15. Record 1kHz and 8kHz signals. 16. Playback and express in dB the difference between output levels of 8kHz and 1kHz. 17. Make sure output level of 8kHz is not within +2±2dB compared with output level of 1kHz. 18. If measured value is not within +2±2dB, adjust VR12 (L-CH), VR14 (R-CH).  17. C. Adjustment of Fe-Cr tape and CrOz tape 19. Set the tape selector to Fe-Cr position. 19. Change test tape to Fe-Cr tape (QZZCRY). 21. Press the record and playback buttons. 22. Record 1kHz and 8kHz signals. 23. Playback and express in dB the difference between output levels of 8kHz and 1kHz. 24. Make sure output level of 8kHz is not within +1±1dB, adjust VR15. 25. Set the tape selector to CrOz tape (QZZCRX). 26. Make the same measurements and adjustments described in steps 21 to 24 above. 29. If measured value is not within +1±1dB, adjust VR16.

ITEM	MEASUREMENT & ADJUSTMENT
	<ul> <li>Measurement</li> <li>1. Test equipment connection is shown in fig. 21.</li> <li>2. Place UNIT into record mode.</li> <li>3. Read voltage on VTVM and calculate bias current by following formula.</li> <li>Bias current (A) = Value read on VTVM (V) / 10 (Ω)</li> </ul>
	Standard value: around $600\mu A$ (Metal position), around $310\mu A$ (Normal position), around $350\mu A$ (Fe-Cr position), around $420\mu A$ (CrO <sub>2</sub> position)
Condition:  * Record/playback mode  * Input level control ··· MAX  * Standard input level:  MIC······ - 72 ± 3 dB  LINE IN ··· - 24 ± 3 dB  DIN ····· - 72 ± 3 dB  * Bias adjustment control  ··· Center  * Output level control ··· MAX  Equipment:  * VTVM  * AF oscillator  * ATT  * Oscilloscope  * Test tape  (reference blank tape)  ··· QZZCRA for Normal  ··· QZZCRX for CrO2  ··· QZZCRY for Fe-Cr  ··· QZZCRZ for Metal	1. Test equipment connection is shown in fig. 22. 2. Place UNIT into record mode. 3. Supply 1kHz signal ( - 24 dB) from AF oscillator, through ATT to LINE IN. 4. Adjust ATT until monitor level at LINE OUT becomes 0.66 V. 5. Using test tape, make recording. 6. Playback recorded tape, and measure the output level at LINE OUT on VTVM.  Standard value: 0.66 ± 0.05 V  Test tape  R/P head LINE IN  Record mode  Test tape  R/P head LINE IN  Fest tape  Fest tape  Test tape  Test tape  Fig. 22  7. If measured value is not within standard, adjust the following VR.  Normal VR9 (L-CH), VR10 (R-CH)  Fe-Cr VR7 (L-CH), VR8 (R-CH)  CrO2 VR5 (L-CH), VR80 (R-CH)  Metal VR801 (L-CH), VR802 (R-CH)
Condition:  * Record mode  * Input level control ··· MAX  * Output level control ··· MAX  * Tape selectors  ··· Normal position  Equipment:  * VTVM  * AF oscillator  * ATT	<ol> <li>Test equipment connection is shown in fig. 23.</li> <li>Set the meter function selector to the "bright" position.</li> <li>Supply 1 kHz signal (-24 dB) to the LINE IN jack, then press the record button.</li> <li>Adjust the ATT so that the output level at LINE OUT jack becomes 0.66 V (= standard input level).</li> <li>Adjustment at "0 dB":         <ul> <li>A. Adjust VR303 (L-CH) and VR304 (R-CH) so that the Fluorescent meters show an illuminated indication up to "0 dB" when the input signal level is 0.9 dB higher than the standard input level.</li> <li>B. Then confirm that the Fluorescent meters show an illuminated indication up to "+1 dB" when the input signal level is 1 dB higher than the standard input level.</li> </ul> </li> <li>Adjust VR301 (L-CH) and VR302 (R-CH) so that the Fluorescent meters show an illuminated indication up to "-20 dB" when the input signal level is 15.1 dB lower than the standard input level.</li> <li>Then confirm that the Fluorescent meters show an illuminated indication up to "-20 dB" when the input signal level is 15.1 dB lower than the standard input level.</li> <li>Repeat twice between steps 3 and 6 above.</li> </ol>
Overall frequency response Condition:  * Record/playback mode  * Input level control MAX  * Bias adjustment control Center	Note:  Before measuring and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).  1. Test equipment connection is shown in fig. 22.  2. Load reference blank test tape and

#### **ITEM MEASUREMENT & ADJUSTMENT** Equipment: 3. Supply 1kHz signal from AF \* VTVM oscillator through ATT to LINE IN. Overall frequency response chart (CrO2, Fe-Cr, Metal) Adjust ATT so that input level is \* AF oscillator \* ATT -20 dB below standard recording \* Test tape (reference blank level (standard recording level = 0 VU). tape) At this time, LINE OUT level indicates ··· QZZCRA for Normal 0.066 V ... QZZCRX for CrO<sub>2</sub> 6. Record each frequency 30 Hz, 40 Hz, 70Hz, 700Hz, 1kHz, 2kHz, 7kHz, ··· QZZCRY for Fe-Cr ··· QZZCRZ for Metal 10 kHz and 13.5 kHz (16 kHz for CrO<sub>2</sub>, Fe-Cr and Metal) at the same level. Fig. 26 7. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1kHz. 8. Make sure that the measured value is within the range specified in the overall frequency response chart. Adjustment-1 1. When the frequency response between the middle and high +2d8 frequency range becomes higher than the standard value, as 0 shown by the solid line in fig. 27 increase, refer to bias current dB — 2 dB When it becomes lower, as shown by dotted line, refer to bias current adjustment. 8kHz 12kHz Note: Fig. 27 For adjustment when the bias current is lower than the standard value use the procedure indicated in adjustment 2, because reducing the bias current beyond this point may worsen the distortion factor. 2. For the method of bias current measurement, refer to "Bias current adjustment" on page 5. Adjustment-2 When the frequency response is flat in the middle frequency range + 2 dB and makes a sharp rise or drop in the high frequency range, as shown in fig. 28, adjust by turning the following peaking coils. 0 dΒ Normal ..... L3 (L-CH), L4 (R-CH) - 2 dB Fe-Cr ..... L5 (L-CH), L6 (R-CH) CrO<sub>2</sub> ......L7 (L-CH), L8 (R-CH) 8kHz 14kHz 1kHz 2kHz Metal ..... L801 (L-CH), L802 (R-CH) Fig. 28 NR circuit Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain -34.5 dB at TP9 (L-CH), TP10 (R-CH) (frequency 5 kHz). Condition: Confirm that the value at IN position is 8dB greater than the value at OUT position of Dolby NR \* Record mode switch. \* Input level control · · · MAX When it is not in condition above, adjust as follows. Equipment: Set the VR201 to maximum \* VTVM Set the Dolby NR switch to IN position. \* AF oscillator 6. At this time adjust VR202 so that the reading of VTVM becomes 10 dB greater than the value in \* ATT step (1) above. \* Oscilloscope Adjusting VR201 make the reading of VTVM becomes 2dB smaller than the value obtained through the adjustment in step (6) above.

### **SCHEMATIC DIAGRAM** Main Amp Section

TR1 2SA721 TR2 2SC1327 TR<sub>204</sub> 2SC945



#### NOTE:

- S1-1~S1-7, S2-1~S2-7 ······ Record/playback select switch (shown in playback position).
  S3-1~S3-4 ······· Tape select switch (1···normal, 2···Fe-Cr, 3···CrO<sub>2</sub>).
  S4-1~S4-4 ······ Meter select switch (1···peak/bright, 2···peak/dim, 3···VU/dim).
- \$5-1, \$5-2... \$6-1~\$6-4 Function switch (1...memory rew, 2...off, 3...timer rec). Dolby NR select switch (1...Dolby "OUT", filter "OUT", 2...Dolby "IN", filter "IN", 3...Dolby "IN", filter "OUT").
- \$7-1~\$7-4 Input select switch (1...mic, 2...line in, 3...rec mute). • S8-1 S8-2 Tape select switch (for metal tape). Playback equalizer adjustment VR.
- VR3. 4 Playback level adjustment VR. • VR5 6
- Standard recording level adjustment VR (for CrO2 tape). • VR7, 8 Standard recording level adjustment VR (for Fe-Cr tape). Standard recording level adjustment VR (for normal tape). • VR9, 10
- · Bias current adjustment VR (for metal tape). · Bias current adjustment VR (for normal tape). Bias current adjustment VR (for Fe-Cr tape). • VR16 Bias current adjustment VR (for CrO2 tape). • VR17 Bias current adjustment control • VR18, 19 Input level control. • VR20 · Meter brightness adjustment control • VR201, 202 Dolby NR adjustment VR. • VR301, 302 Fluorescent level meter adjustment VR (for -20dB indication). • VR303, 304 Fluorescent level meter adjustment VR (for OdB indication). • VR305, 306 Output level control.

Bias current adjustment VR (for normal tape).

Standard recording level adjustment VR (for metal tape).

• VR12

VR13

• VR14

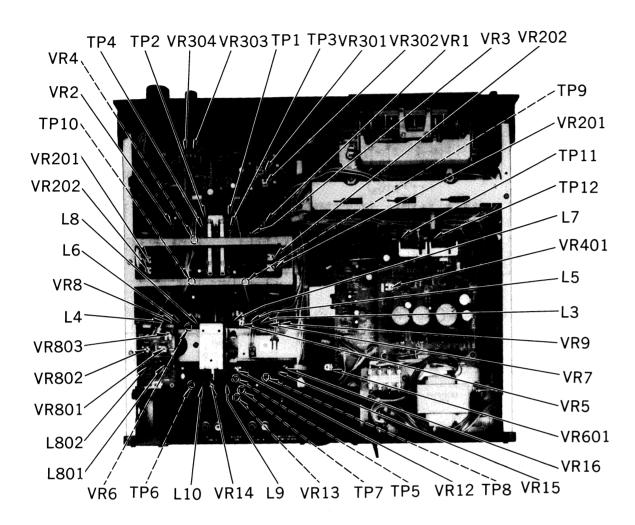
• VR801, 802

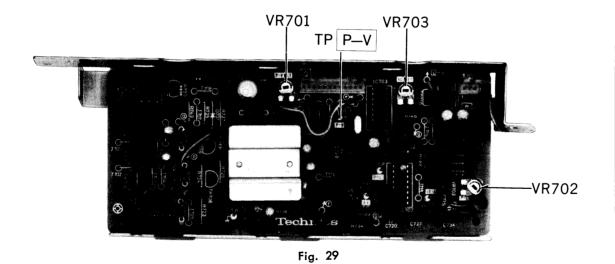
- VR803 Erase current adjustment VR (for metal tape).
- L3, 4 Recording equalizer adjustment coil (for normal tape). • L5, 6 Recording equalizer adjustment coil (for Fe-Cr tape). • L7, 8 Recording equalizer adjustment coil (for CrO2 tape) • L801, 802 Recording equalizer adjustment coil (for metal tape)
- Resistance are in ohms ( $\Omega$ ), 1/4 watt unless specified otherwise. K = 1,000  $\Omega$ .
- Capacity are in microfarads (μF) unless specified otherwise. P = Pico-farads.
- All voltage values shown in circuitry under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM

#### \* Input level control · · · MAX **SPECIFICATIONS** \* Output level control · · · MAX

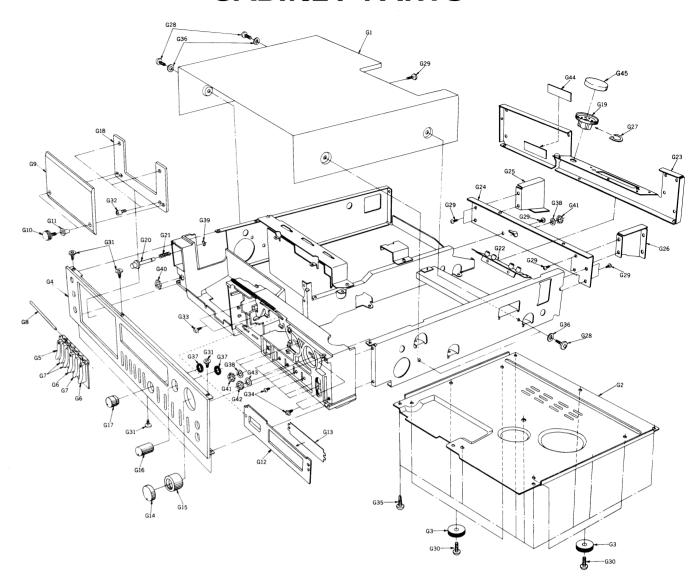
Playback S/N ratio Test tape ··· QZZCFM	Greater than 47dB		
Overall distortion Test tape QZZCRA for Normal QZZCRX for CrO <sub>2</sub> QZZCRY for Fe-Cr QZZCRZ for Metal	Less than 3%		
Overall S/N ratio Test tape ··· QZZCRA	Greater than 45 dB (without NAB filter)		

### **ADJUSTMENT PARTS LOCATION**





### **CABINET PARTS**

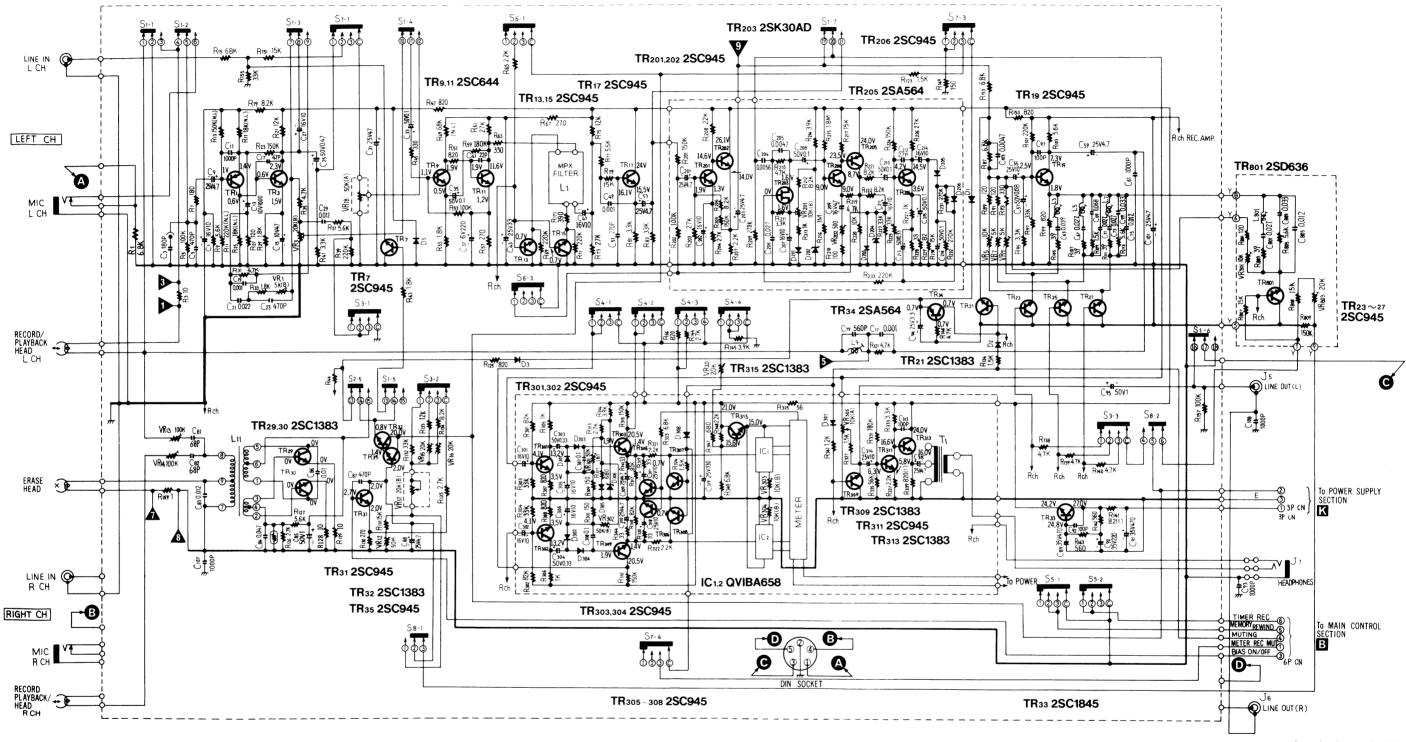


NOTE: <u>∧</u> indicates that only parts specified by the manufacturer be used for safety.

lef. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
	CARIA	NET PARTS	G13	QGL1130	Meter Cover-B	G21	QBC1216	Eject Button Spring	G43	XWS9AW	Washer 9¢
			G14	QYT0465	Volume Knob-A Assembly	G22	QEJ5002S	Jack Board Assembly	G44 D		Name Plate
1	QGC1102	Case Cover		"Black Type"		G23	QMK1725	Back Cover-A	<b></b> ₩For All	European areas except	United Kingdom.
	"Black Type"			QYT0494	"	G24	QMA3305	Back Cover-B	G44 🖪	QGS2725	n n
	QGC1116	п		"Silver Type"		G25	OMA3306	Back Cover Holder-R	₩For Ur	ited Kingdom.	
	"Silver Type"		G15	QYT0466A	Volume Knob-B Assembly	G26	OMA3307	Back Cover Holder-L	G45	QBG1640	Remote Cap
		2 2		"Black Type"		G27	OMA3445	Socket Angle			
İ	QGC1089	Bottom Cover		QYT0495	rr .	G28	XSB4+8BVS	Screw ⊕4×8		ACCE	SSORIES
	QKA1076	Rubber Foot		"Silver Type"		G29	XTN3+8B	Tapping Screw ⊕3×8	A1	RP023A	Connection Cord
	QYP0886	Front Panel Assembly	G16	QYT0456	Volume Knob Assembly	G30	XSN4+6S	Screw ⊕4×6	A2	QFTC30S011TZ	Demonstration Tape
	"Black Type"			"Black Type"		1930	A3114 1 03	Scient ()4×0	A3 [0		Instruction Book
	QYP0888	н		OYT0497	n	G31	XSS3+8S	Screw ⊕3×8	₩For Al	European areas except	United Kingdom.
	"Silver Type"			"Silver Type"	E MINOR TO THE TOTAL THE TOTAL TO AL TO THE	G32	XVE26C4FZ	Screw	A3 [B		"
	QXB0528	Control Button (REC)	G17	OYT0559	Volume Knob-C Assembly	u32	"Black Type"	Screw		nited Kingdom.	
	QXB0529	Control Button (PLAY, PAUSE)			(bias adjust)		XVE26A4FN	,,			
	QG01416	Control Button (FF, REW, STOP)		"Black Type"	(0.00 00,000)			"		PAG	CKINGS
	QMN2266	Button Shaft	1	OYT0559S	,,	000	"Silver Type"	T	P1	OPN3904	Inside Carton
	QGK2804	Cassette Lid		"Silver Type"		G33	XTN3+6B	Tapping Screw ⊕3×6	P2	OPA0376	Inner Cushion-A (Left)
)	QHQ1272	Cassette Lid Holder	G18	QGK2947	Cassette Lid	G34	XSN3+6BVS	Screw ⊕3×6	P3	QPA0377	Inner Cushion-A (Right)
1	"Black Type"		1010	"Black Type"	Oussette Eld	G35	XTN4+8B	Tapping Screw ⊕4×8	P4	QPA0378	Inner Cushion-B (Left)
	QHQ1280	В		QGK2947S	ri .	G36	XWG4FZ	Flat Washer 4 ¢	P5	OPA0379	Inner Cushion-B (Right)
i	"Silver Type"	i L		"Silver Type"	"	G37	QBJT0017	Button Cover	1	1 1 -	
	i		G19		Remote Control Socket	G38	XWS8AW	Washer 8¢	P6	QPA0380	Spacer (Bottom Side)
	QBG1551	Rubber Cushion	G20	QJS0803X		G39	XUC25FT	Stop Ring 2.5 ¢	P7	QPA0381	Spacer (Top Side)
2	OKJ0246	Meter Cover-A	G20	QXB0527A	Eject Button Assembly	G40	QNQ1051	Nut	P8	XZB50X65A04	Poly Bag
	"Black Type"			"Black Type"							
	QKJ0313	и		QXB0577	n n	G41	QNQ1004	"			
	"Silver Type"		1	"Silver Type"		G42	QNQ1039	n .	1		

### **SCHEMATIC DIAGRAM Main Amp Section**

TR1 2SA721 TR2 2SC1327



TR<sub>204</sub> 2SC945

N	0	T	E	:

HOIL.	
• \$1-1~\$1-7, \$2-1~\$2-7 ····	·· Record/playback select switch (shown in playback position).
• \$3-1~\$3-4 ······	·· Tape select switch (1···normal, 2···Fe-Cr, 3···CrO <sub>2</sub> ).
• \$4-1~\$4-4 ·····	·· Meter select switch (1 ··· peak/bright, 2 ··· peak/dim, 3 ··· VU/d
• \$5-1, \$5-2	·· Function switch (1··· memory rew, 2··· off, 3··· timer rec).
• \$6-1~\$6-4 ······	·· Dolby NR select switch (1Dolby "OUT", filter "OUT",
	2Dolby "IN", filter "IN", 3Dolby "IN", filter "OUT").
• \$7-1~\$7-4 ·····	Input select switch (1mic, 2line in, 3rec mute).
• \$8-1, \$8-2·····	·· Tape select switch (for metal tape).
● VR1, 2	· Playback equalizer adjustment VR.
• VR3, 4	· Playback level adjustment VR.
• VR5, 6	·· Standard recording level adjustment VR (for CrO2 tape).
• VR7, 8	· Standard recording level adjustment VR (for Fe-Cr tape).
• VR9, 10	·· Standard recording level adjustment VR (for normal tape).

• VR12 ·····	Bias current adjustment VR (for normal tape).
• VR13	- Bias current adjustment VR (for metal tape).
• VR14 ·····	- Bias current adjustment VR (for normal tape).
• VR15 ·····	- Bias current adjustment VR (for Fe-Cr tape).
• VR16 ·····	- Bias current adjustment VR (for CrO <sub>2</sub> tape).
• VR17 ·····	- Bias current adjustment control.
• VR18, 19	- Input level control.
• VR20 ·····	· Meter brightness adjustment control.
• VR201, 202 ·····	· Dolby NR adjustment VR.
• VR301, 302 ·····	·· Fluorescent level meter adjustment VR (for -20 dB indication).
• VR303, 304 ·····	<ul> <li>Fluorescent level meter adjustment VR (for OdB indication).</li> </ul>
• VR305, 306 ·····	·· Output level control.
• VR801, 802 ·····	·· Standard recording level adjustment VR (for metal tape).

• VR803	Erase current adjust	tment VR (fo	r metal	tape).
• L3, 4 ·····	Recording equalizer	adjustment	coil (for	normal tape)
• L5, 6 ·····	Recording equalizer	adjustment	coil (for	Fe-Cr tape).
• L7, 8	Recording equalizer	adjustment	coil (for	CrO2 tape).
• L801, 802 ·····	Recording equalizer	adjustment	coil (for	metal tape).

Resistance are in ohms ( $\Omega$ ), 1/4 watt unless specified otherwise.  $K = 1,000 \Omega$ .

 Capacity are in microfarads (µF) unless specified otherwise. P = Pico-farads.

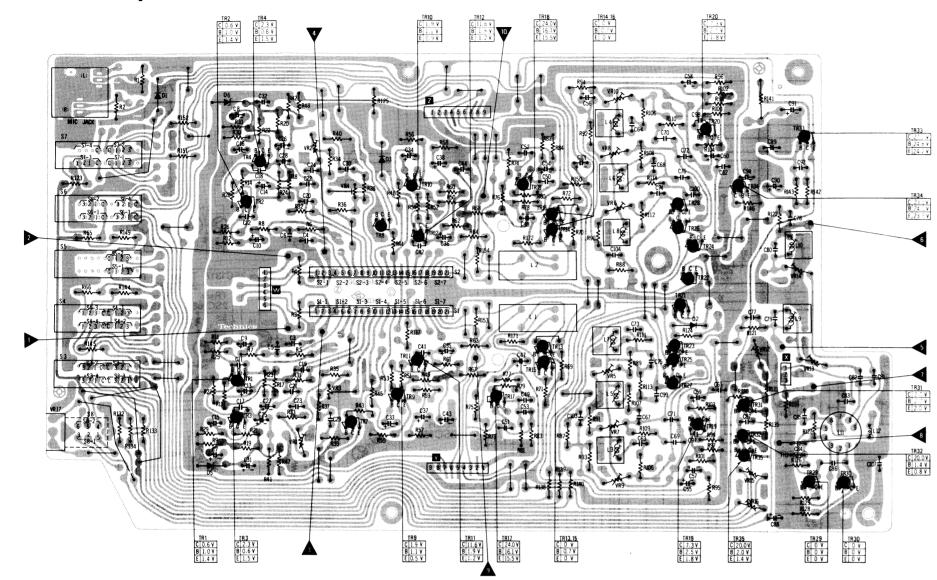
 All voltage values shown in circuitry under no signal condition and record mode with volume control at minimum position. For measurement, use VTVM.

#### SPECIFICATIONS

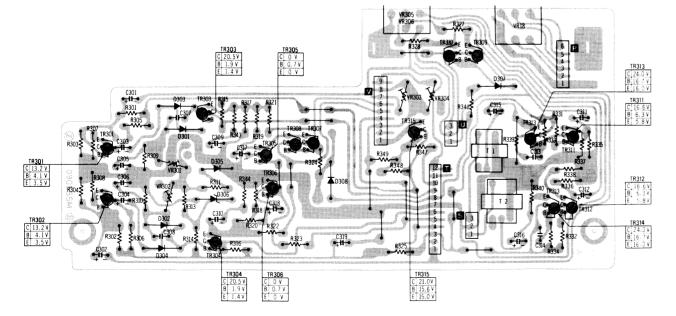
\* Input level control ··· MAX \* Output level control ··· MAX

Playback S/N ratio Test tape ··· QZZCFM	Greater than 47dB
Overall distortion Test tape QZZCRA for Normal QZZCRX for CrO <sub>2</sub> QZZCRY for Fe-Cr QZZCRZ for Metal	Less than 3%
Overall S/N ratio Test tape ··· QZZCRA	Greater than 45 dB (without NAB filter)

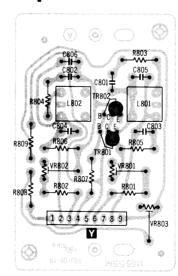
### CIRCUIT BOARD Main Amp



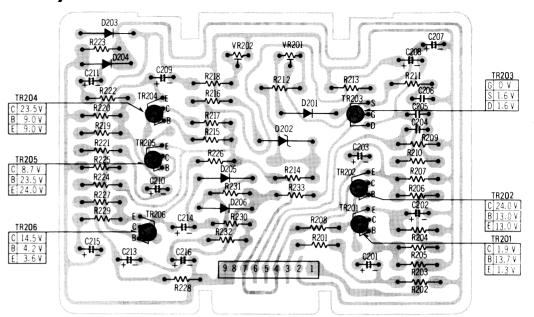
### Output



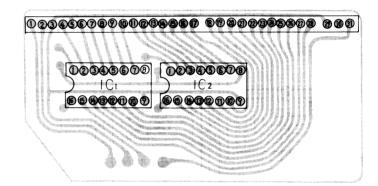
### Equalizer



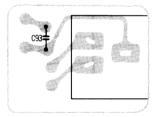
### Dolby



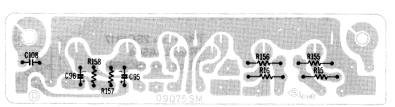
**FL Meter** 



### **Headphones Jack**



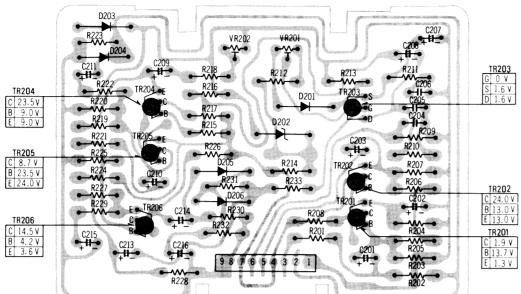
### **Jack**



#### NOTE:

The circuit shown in red on the conductor is B circuit. Values indicated in \_\_\_\_\_ are DC voltage between the chassis and electrical parts.

### Dolby

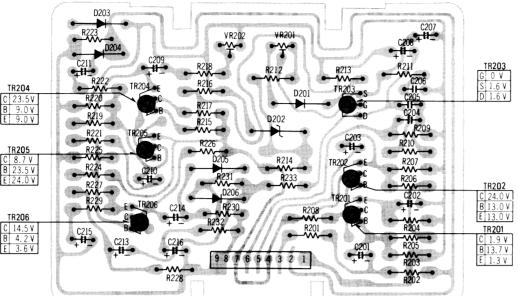


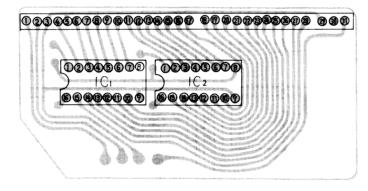
### **FL Meter**



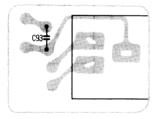
#### NOTE:

The circuit shown in red on the conductor is B circuit. Values indicated in \_\_\_\_ are DC voltage between the chassis

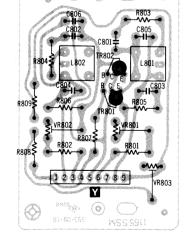




### **Headphones Jack**



### **Jack**



Equalizer

ECE ..... Electrolytic
ECE ..... Non polar electrolytic
ECQS...... Polystyrene
ECS ..... Tantalum

0 ··· Metal- X ··· Metal-	film   film   ype metallic	ECK □ ···· Ce ECC □ ···· Ce ECF □ ···· Ce ECQM ····· Pc ECQE ····· Pc ECQF ···· Po	ramic ramic olyester Film olyester Film	ECE - · · · · EI ECE - · · · · · N ECQS - · · · · P ECS - · · · · T	on polar electro olystyrene		∆ indicates t		
Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.
R	ESISTORS	R128, 129		R331, 332		R544, 545		R710, 711,	712, 713, 714, 7
R1, 2	ERD25FJ682		ERD25FJ100		ERD25TJ184	R546	ERD25FJ562 ERD25TJ473	R716	ERD25FJ102 ERD25FJ272
R3, 4 R5, 6	ERD25FJ100 ERD25TJ104	R130	ERD25FJ271	R333, 334		R547	ERD25FJ562	R717, 718	
R7, 8	ERD25FJ181	R131	ERD25TJ153	2005 200	ERD25FJ332	R548	ERD25TJ474		ERD25FJ103
R9, 10	ERD25FJ562	R132 R133	ERD25TJ333 ERD25TJ123	R335, 336	ERD25TJ563	R549	ERD25FJ101	R719	ERD50FJ100
R11, 12 R13, 14	ERD25TJ224 ERD25TJ154	R134	ERD25FJ822	R337, 338		R550	ERD25FJ182	R720	ERD25FJ182
R15, 16	ERD25TJ683	R135	ERD25FJ272	2222 242	ERD25FJ222	R551	ERD25FJ562	R721	ERX12ANJ5R6
R17, 18	ERD25TJ183	R138, 139,	ERD25FJ472	R339, 340	ERG1ANJ821	R552 R553	ERD25TJ153 ERD25FJ681	R722 R728	ERD25FJ182 ERD25TJ183
R19, 20	ERD25FJ822	R141	ERX1ANJ8R2	R341	ERD25FJ122	R554	ERD25FJ182	R729	ERD25FJ121
R21, 22	ERD25TJ123	R142 R143	ERD25FJ222 ERD25FJ561	R343, 344	ERD25FJ330	R556, 558	ERD25FJ681	R730 R731	ERD25TJ823
R23, 24	ERD25TJ154	1143	ERD23/3301	R347	ERD25FJ681	R559	ERD25TJ153	R732	ERD25TJ473 ERD25FJ272
R25, 26 R27, 28	ERD25TJ183 ERD25FJ121	R144	ERD25FJ272	R348	ERD25FJ222	R560, 561	1	R733	ERD25FJ103
R29, 30	ERD25FJ182	R145 R146	ERD25FJ392 ERD25FJ472	R349 R401	ERD25FJ682 ERX1ANJ2R2	R562	ERD25FJ562 ERD25TJ473	R734	ERD25FJ472
R31, 32	ERD25FJ472	R149	ERD25FJ151	1401	LIKATANJERE	1,302	END2313473	R735	ERD25TJ104
R33, 34 R35, 36	ERD25FJ182 ERD25FJ472	R150	ERD25FJ821	R402	ERG1ANJ471	R563	ERD25FJ182	R736	ER025CKF82
R37, 38	ERD25FJ562	R151, 152	ERD25TJ153	R403 R404	ERD25FJ472 ERD25FJ121	R564 R565	ERD25TJ153 ERD25FJ331	R737 R738	ERD25TJ153 ERD25FJ822
R39, 40	ERD25TJ224	R153, 154	LKD2513133	R405	ERD25FJ272	R566	ERD25FJ182	R739	ERD25FJ392
R41, 42	ERD25TJ333		ERD25FJ682	R406	ERD25FJ103	R567, 568		R740	ERD25FJ102
R43, 44	ERD25FJ182	R155, 156	ERD25TJ333	R407 R408	ERD25FJ472 ERD25FJ272	R569	ERD25TJ473 ERD25FJ562	R741 R742	ERD25FJ821 ERD25TJ225
R45, 46 R47, 48	ERD25FJ331 ERD25FJ821	R157, 158	LKDED13333	R409	ERD25TJ273	R570	ERD25FJ681	R743	ERD25FJ121
R49, 50	ERD25FJ683	2150	ERD25TJ104	R410, 411		R571	ERD25FJ392		
R51, 52	ERD25FJ821	R159	ERD25FJ1R0	R412	ERD25FJ102 ERD25TJ153	R572 R573	ERD25TJ123 ERD25FJ472	R744 R745	ERD25TJ273 ERD25FJ821
R53, 54	ERD25TJ104	R171, 172			ENDES 13133	"""		R746	ERD25FJ152
R55, 56 R57, 58	ERD25FJ182 ERD25FJ271	D175	ERD25FJ391	R413	ERD25FJ471	R574	ERD25FJ182	R748	ERD25FJ152
R59, 60	ERD25TJ184	R175 R201×2	ERG1ANJ560 ERD25TJ154	R414 R415	ERD25TJ473 ERX1ANJ1R0	R575 R576	ERD25FJ562 ERD25FJ182	R801, 802	ERD25FJ121
	5000551070	R202×2	ERD25TJ104	R416	ERG1ANJ681	R577	ERG1ANJ820	R803, 804	
R61, 62 R63, 64	ERD25FJ272 ERD25FJ331	R203×2	ERD25TJ273	R417	ERD25FJ391	R590	ERD25FJ151	2005 000	ERD25FJ390
R65	ERD25FJ222	R204×2 R205×2	ERD25FJ272 ERD25TJ154	R418 R419	ERD25FJ221 ERD25FJ152	R592, 593	ERD25FJ331	R805, 806	ERD25FJ562
R66	ERD25FJ821	R206×2	ERD25FJ822	R420	ERG1ANJ391	R595	ERD25TJ473	R807, 808	
R67, 68 R69, 70, 7	ERD50FJ271 '1. 72	R207×2 R208×2	ERD25FJ222 ERD25TJ223	R421 R422, 423	ERD25FJ471	R596 R601	ERD25FJ102 ERD25TJ153	R809	ERD25TJ153 ERD25TJ154
	ERD25TJ224	N206×2	LRD2313223		ERD25FJ121	R602	ERD25FJ561	R811	ERD25FJ681
R73, 74 R75, 76	ERD25TJ273 ERD25TJ123	R209×2	ERD25TJ274				FRRAFFILES	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
R77, 78	ERD25FJ562	R210×2 R211×2	ERD25TJ473 ERD25FJ332	R424 R425	ERD25FJ471 ERD50FJ220	R603 R604	ERD25TJ153 ERD25FJ122	VARIAB	RESISTO
R79, 80	ERD25TJ153	R212×2	ERD25FJ822	R426	ERD25FJ121	R605	ERD25FJ221	VR1, 2	EVNK4AA00E
R81, 82	ERD25FJ332	R213×2	ERD25FJ102	R427	ERX1ANJ120	R606	ERD25FJ2R2	VR3, 4	EVNK4AA00E
R83, 84	ERD25TJ333	R214×2	ERD25FJ392	R428	ERG1ANJ390	R607	ERD25FJ151	VR5, 6 VR7, 8, 9, 1	EVNK4AA00E
R87, 88   R89, 90, 9	ERD25FJ682	R215×2 R216×2	ERD25TJ185 ERD25TJ105	R429 R430	ERQ12HJ180 ERD50FJ220	R608 R609	ERD25FJ102 ERD25FJ103	1 1 1 1 1	EVNK4AA00E
1103, 30, 1	ERD25FJ121	R217×2	ERD25TJ153	R501	ERD25FJ562	R610	ERD25FJ2R2	VR12	EVNK4AA00E
R93, 94	ERD25FJ331	R218×2	ERD25FJ101	R502 R503	ERD25FJ101 ERD25FJ562	R611 R612	ERD25FJ221 ERD25FJ561	VR13, 14 VR15, 16	EVNK4AA00E
R95, 96 R97, 98	ERD25FJ332 ERD25TJ333	R219×2	ERD25FJ472	R504	ERD25FJ101	1.012	LINDESTIGOT	VR17	QVHCWF20B
R99, 100	ERD25FJ821	R220×2	ERD25FJ103	R505	ERD25FJ562	R613	ERD25FJ122	VR18 VR20	EWKNXAF22 EVHG3AS158
R101, 102	ERD25TJ224	R221×2, 22	ERD25FJ822	R506	ERD25FJ101	R614 R615	ERD25TJ153 ERD25FJ561	VN20	LVIIGSASISE
R103, 104		R223×2	ERD25TJ333	R507	ERD25FJ562	R617	ERD25FJ682	VR201×2	
1	ERD25FJ562	R224×2 R225×2	ERD25TJ154 ERD25TJ333	R508 R509	ERD25FJ101 ERD25FJ562	R618	ERD25TJ153	VR202×2	EVNK0AA00E
R105 106	5, 107, 108	R226×2	ERD251J333	R510	ERD25FJ101	R619 R620	ERG1ANJ271 ERD25FJ562		EVNKOAA00E
	ERD25FJ390	R227×2	ERD25FJ102	R511	ERD25FJ562	R621	ERD25FJ331	VR301, 302	
R109, 110		R228×2 R229×2	ERD25FJ560 ERD25FJ820	R512 R513	ERD25FJ101 ERD25FJ222	R622 R623	ERD25FJ682	VR303, 304	EVNK4AA008
R111, 112	ERD25FJ152			R514	ERD25FJ471	11023	ERD25TJ153		EVNK4AA00
	ERD25FJ390	R230×2 R231×2, 23	ERD25TJ153	R515	ERD25FJ222	R624	ERG1ANJ271	VR305 VR401, 701	EWKEUA033
R113, 114	ERD25FJ562	1,231,72, 23	ERD25TJ274	R516	ERD25FJ681	R625	ERD25FJ562 ERD25FJ331		EVNK4AA00
R121, 122		R233×2	ERD25TJ224	R517 R518	ERD25FJ102 ERD25FJ562	R626 R627	ERD25FJ331 ERD25FJ562	VR601	EVNKOAA00E
D102 15	ERD25FJ472	R301, 302	ERD25TJ823	R519, 520		R628	ERD25TJ473	VR703 VR801, 802	EVNK4AA00
R123, 124	ERD25FJ152	R303, 304		R521	ERD25TJ153	R629 R630	ERD25FJ122 ERD25FJ562		EVNK4AA00
R125	ERD25FJ821	R305, 306	ERD25TJ333	R521 R522	ERD25FJ271 ERD25FJ562	R631	ERD25FJ682	VR803	EVNK4AA00
R126 R127	ERD25FJ272 ERD25FJ562	N303, 300	ERD25FJ102	R523	ERD25TJ473	R632	ERD25FJ153	VR601	EVNKOAA00
	2520.0002	R307, 308		R524 R525	ERD25FJ562 ERD25TJ104	R634	ERG1ANJ271	CAF	ACITORS
		R309, 310	ERD25FJ821	(		R635	ERD25FJ562	C3, 4	ECCD1H181
		1	ERD25TJ154	R526 R527	ERD25FJ562 ERD25TJ153	R636	ERD25FJ682	C5, 6	ECKD1H471I
		R311 R313	ERD25FJ681	R528	ERD25TJ563	R638 R639	ERD25FJ272 ERD25FJ103	C7, 8 C9, 10	ECEA1HS100 ECEA25M4R
		K313	ERD25FJ272	R529	ERD25FJ562	R640	ERD50FJ181	C11, 12	ECFWD102K
		R314	ERD25FJ392	R530 R531	ERD25FJ472 ERD25FJ122	R641 R642	ERD25FJ272 ERD25FJ103	C13, 14	ECEA1AS101
		R315, 316	ERD25TJ154	R532	ERD25FJ102	R642 R644	ERD25FJ103 ERD25FJ272	C15, 16 C17, 18	ECCD1H470
		R317, 318	LND2313134	R533 R534	ERD25TJ474 ERD25FJ101	R645	ERD25TJ153	C19, 20	ECQM05102
			ERD25TJ823	R535	ERD25FJ101	R646	ERD25FJ102	C21, 22	ECQM052231
		R319, 320	ERD25FJ330			R647	ERD50FJ4R7	C23, 24	ECKD1H471I
		R321, 322	EUD2013220	R536, 537	ERD25FJ101	R701	ERD25FJ560	C25, 26	ECEA50MR4
			ERD25FJ222	R538	ERD25FJ471	R702	ERD25FJ103	C27, 28 C29, 30	ECEA1HS100
		R323 R324	ERD25FJ682 ERD25FJ152	R539 R540	ERD25FJ101 ERD25FJ562	R703 R704	ERD25FJ560 ERD25FJ103	C29, 30 C31, 32	ECQM05123F ECEA1ES470
		R325	ERQ12HJ560	R540 R541	ERD25FJ562 ERD25TJ153	R705	ERD25FJ560	C33, 34	ECEA50MR1
		R327, 328	ERD25FJ152	R542, 543		R706, 707,		C35, 36	ECEA50ZR1 ECEA1AS221
					ERD25TJ473			C37, 38	

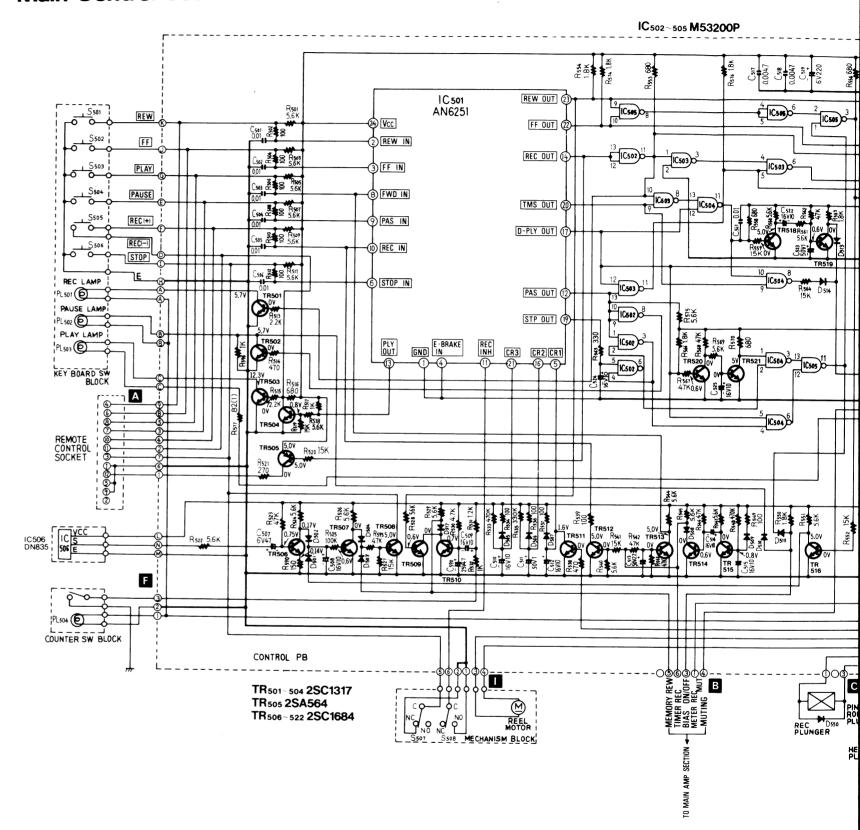
Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.		Part No.
C41, 42	ECCD1H220K	C509	ECEA1HS100	Tr309, 31	0	D411		RVD10DC4
C43, 44	ECEA1VS330	C510	ECEA16Z10	1	2SC1383	D412	Δ	RVD10DC4R
.		C511	ECEA50Z1	Tr311, 31	2	D413		SM112
C47, 48	ECEA1HS100	C512	ECEA16Z10	1 1	2SC945	D414	Δ	RVD10DC4R
C49, 50	ECQM05102KZ	C513	ECEA50Z2R2	Tr313, 31	4. 315	D414		MV121
C51. 52	ECCD1H271K	C514	ECEA16N10		2SC1383	D415	Δ	RVD10DC4
C53, 54	ECEA1JS4R7	C515	ECEA1HS100			D501, 50	2, 5	03, 504, 505, 506
C55, 56	ECEA1HS100	C517, 518		Tr401	0001000	507, 50	В	
C57, 58	ECEA50ZR68		ECKD1H472KB		2SC1226	,	ĺ	MA150
C59, 60	ECEA25M4R7	1		17402, 40	3, 404, 405	D509		0A91
C61, 62	ECKD1H102K	C519	ECEA1AS221	7.400	2SC1684			
C63. 64	ECQM05393KZ	C521		Tr406	2SA564	D510, 51	1. !	13. 514
C67, 68	ECQM05273KZ	C521	ECKD1H103ZF	Tr407	2SD389	1	,	MA150
007, 00	Log.moot, one		ECEA16Z10	Tr408, 40		D515		SM112
C69, 70	ECOM05683KZ	C523	ECEA50Z1	l!	2SC1684	D516		MV121
C71, 72, 7		C524, 525	5054440400	Tr501, 50		D517		MA150
0, 1, ,2, ,	ECOM05273KZ	0500	ECEA1HS100		2SC1317	D550, 55	1 4	
C75. 76	ECQM05123KZ	C526	ECEA1CS471	Tr504	2SC1684	15550, 55	•	SM112
C77, 78	ECOM05102KZ	C530	ECEA50ZR47	Tr505	2SA564	D590		MA150
C79. 80	ECOS1561JZ	C590	ECEA1JS4R7		7, 508, 509, 510, 511	DE01		1S2473T
C81, 82	ECCD1H680K	C601, 602			3, 514, 515, 516, 518		2	03, 604, 605
C83	ECQF4123KZ		ECEA1CS330	519, 520	0, 521, 522	10001, 00	۷, ر	MA150
C84		C603, 604,			2SC1684	D606, 60		MAIOU
C85	ECQM05473KZ		ECEA16Z10	Tr523	2SA564	10000, 000	•	0A90M
	ECEA50ZI					0000		
C86	ECQF4103KZH	C606	ECEA16Z33	Tr601	2SA719	D609		SM112
	5000	C610	ECEA50Z2R2	Tr602	2SC1846			
C87	ECKD1H471K	C701, 702.		Tr603	2SA719	D610		0A90M
C88	ECEA1JS4R7	10,01,,02,	ECEA25Z3R3	Tr604, 60		D611		SM112
C89	ECEA1VS471	C704	ECEA50ZR47	11004, 00	2SC1684	D702		MA150
C90	ECEA1VS221	C705, 706,		Tr606	2SC1317	D703		MA1120
C91	ECEA1VS471	10,00,,00,	ECEA50ZR22	Tr607	2SC1684		_	
C92	ECCD1H101K	C708	ECQM05103KZ	Tr608	2SC1383	ł		
093	ECKD1H102KB	C709	ECOM05473KZ	Tr609, 610				
094	ECEA25Z3R3	C710	ECQM05393KZ	11009, 610	*			
295, 96	ECEA50ZI	C712	ECFDD104KXY	Tr612	2SC1684			
097, 98	ECCD1H101K	C712	ECEA25Z100		2SA886	1		
		0/13	EUEM232100	Tr613	2SC1684			
299, 100	ECOM05333KZ	1	1	1	1	i		

85		ECEA50ZI	ŀ		ECENTOZIO	11523		25A564			0A90M	
86		ECQF4103KZH	C606		ECEA16Z33	Tr601		2SA719	D609		SM112	
		F0// 04/14/24/14	C610		ECEA50Z2R2	Tr602		2SC1846	2010			
87		ECKD1H471K	C701, 70	2.		Tr603		2SA719	D610		OA90M	
88		ECEA1JS4R7		Ľ	ECEA25Z3R3	Tr604, 6	05	2011/13	D611		SM112	
89 90		ECEATVS471	C704		ECEA50ZR47		Ī	2SC1684	D702		MA1100	
91		ECEA1VS221 ECEA1VS471	C705, 70	6,	707	Tr606		2SC1317	D703		MA1120	
92		ECCD1H101K	1		ECEA50ZR22	Tr607		2SC1684		_		
93		ECKD1H101K	C708		ECQM05103KZ	Tr608		2SC1383	ĺ			
94		ECEA25Z3R3	C709		ECQM05473KZ	Tr609, 6	10,		l			
95, 96		ECEA50ZI	C710		ECQM05393KZ			2SC1684	ŀ			
97, 98		ECCD1H101K	C712		ECFDD104KXY	Tr612		2SA886				
37, 30		LOODIMIOIN	C713		ECEA25Z100	Tr613		2SC1684	Ì			
99, 100		ECQM05333KZ					İ					
101		ECEA1ES470	C714		ECQM05393KZ	Tr614		2SA886				
103, 104			C715		ECQM05683KZ	Tr615		2SA564				
		ECOM05472KZ	C716		ECQM05104KZ	Tr616		2SC1684				
107, 108			C717		ECQM05103KZ	Tr617		2SA886				
		ECKD1H102K	C718		ECQM05223KZ	Tr618		2SC1684				
201×2		ECEA25Z4R7	C719		ECEA50ZR22	Tr619		2SC1847				
202×2		ECEA1HS100	C720		ECQM05562KZ	Tr620		2SC1684				
203×2		ECEA25Z4R7	C721	ĺ	ECQM05153KZ	Tr621		2SC1847				_
204×2		ECQM05562KZ	C722		ECQM05562KZ	Tr622		2SC1684			Ref. No.	
205×2		ECQM05472KZ	C723		ECKD1H471KB	Tr623		2SC1847	!		-	+
206×2		-	C724		ECQM05123KZ	Trend		1				
200.2		ECQM05273KZ	C725		ECQM05182KZ	Tr624	1	2SC1406				
207×2		ECEATURION	C726		ECQS1682JZ	Tr701, 7	۷۷,	2SC1846			T1, 2	QI
208×2		ECEATHS100	C727		ECQM05223KZ	T-704 7	\ \ \				T401 📵 🛭	7 SI
209×2		ECEA50MR1 ECEA1ES470	C728, 72	9	204002202	Tr704, 7	υ <b>ວ</b> ,				<b>≭</b> For Unite	
210×2	- 1		0,10,71	Ĭ	ECCD1H220KC	T-707		2SA885			T401 🖸 🕹	1Q Z
211×2		ECEA50ZR1 ECEA1HS100	C730		ECQM05562KZ	Tr707 Tr710		2SC1318			<b>≭</b> For All Eu	ırope
212×2		ECCD1H270KC	C731, 73	2.			n2	2SC1383				
213×2		ECEA50ZR33	,	Ī, I	ECEA1CS330	Tr801, 8	1	200626				
214×2		ECEA1HS100	C734		ECQM05332KZ			2SD636			L1, 2	QL
215×2		ECEA50ZR1	C801, 80	2		INTEG	R4	ATED			L3, 4, 5, 6,	7, 8
216×2		ECEA50ZR1	,	Ī	ECQM05273KZ		•••	CIRCUITS				QL
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	.				ECQM05333KZ	IC501		AN6251			L11	QL
301. 302	, ,											
301, 302		ECEA1HS100					'nз				L12	QL
		ECEA1HS100	C805, 80	6			ÓЗ,	504, 505			L12 L401, 601,	QL 602
301, 302 303, 304			C805, 80	6	ECQM05123KZ	IC502, 5	03,	504, 505 M53200P				QL
303, 304		ECEA1HS100 ECEA50ZR33			-	IC502, 5	03,	504, 505 M53200P DN835				QL 602
	5		C805, 80		ATION	IC502, 5	03,	504, 505 M53200P			L401, 601,	QL 602 QL
303, 304	5	ECEA50ZR33	сомв	IN	-	IC502, 5 IC506 IC701	03,	504, 505 M53200P DN835 AN640F AN660			L401, 601,	QL 602
303, 304               	5	ECEA50ZR33		1N 2	ATION PARTS	IC502, 50 IC506 IC701 IC702		504, 505 M53200P DN835 AN640F AN660 M58432P			L401, 601,	QL 602 QL
303, 304               	5	ECEA50ZR33 ECEA1HS100	сомв	1N 2	ATION	IC502, 50 IC506 IC701 IC702		504, 505 M53200P DN835 AN640F AN660			L401, 601,	QL 602 QL
303, 304   	5	ECEA50ZR33 ECEA1HS100	<b>COMB</b> Z401, 403	2 A	ATION PARTS	IC502, 50 IC506 IC701 IC702		504, 505 M53200P DN835 AN640F AN660 M58432P			L401, 601,	QL 602 QL QL
303, 304   	3	ECEA50ZR33 ECEA1HS100 ECFWD104MXY	<b>COMB</b> Z401, 402	2 A	QCR0011	IC502, 50 IC506 IC701 IC702 IC703		504, 505 M53200P DN835 AN640F AN660 M58432P			L401, 601,	QL QL QL
303, 304 305, 306 307, 308 309, 310	3	ECEA50ZR33 ECEA1HS100 ECFWD104MXY	<b>COMB</b> Z401, 403  TR. Tr1, 2	2 A	QCR0011 ISISTORS 2SA721	IC502, 50 IC506 IC701 IC702 IC703		504, 505 M53200P DN835 AN640F AN660 M58432P			L401, 601, L801, 802	QL QL QL
303, 304 305, 306 307, 308 309, 310	3	ECEA50ZR33 ECEA1HS100 ECFWD104MXY ECEA25Z4R7	Z401, 403  TR.  Tr1, 2 Tr3, 4	2 A	QCR0011 ISISTORS 2SA721 2SC1327	IC502, 50 IC506 IC701 IC702 IC703 D1, 2, 3 D5, 6 D201×2 D202×2	D	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA1190 OA90M MA1082			S1, 2 S3, 4, 5, 6,	QL QS 7 QS QS QS QS QS QS QS QS QS QS QS QS QS
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803, 304 805, 306 807, 308 809, 310 811, 312 813, 314 815, 316 817, 318	A 1	ECEA50ZR33 ECEA1HS100 ECFWD104MXY ECEA25Z4R7 ECEA1HS100 ECCD1H101K ECEA1ES470 ECEA1HS100 ECEA1HS100 ECEA1HS331 ECET35R2200S	TR. Tr1, 2 Tr3, 4 Tr7, 8 Tr9, 10, 1 Tr13, 14, Tr21, 22 Tr23, 24	2 A AN	QCR0011 ISISTORS 2SA721 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 26, 27, 28 2SC945	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D203×2, D205×2 D206×2 D206×2 D301, 30	20-	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA1190 0A90M MA1082 4×2 1S2473 0A91LF 1S2473 0A91 0A90			S1, 2 S3, 4, 5, 6, S401 A S501, 502, 5	QL QS 7 QS QS QS QS QS
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303, 304 305, 306 307, 308 307, 308 309, 310 311, 312 313, 314 315, 316 317, 318 319, 319 310 310 311, 312 311, 3	A	ECEA50ZR33  ECEA1HS100  ECFWD104MXY  ECEA25Z4R7  ECEA1HS100  ECCD1H101K  ECEA1ES470  ECEA1HS100  ECEA1ES331  ECET35R2200S  ECEA1HS100  ECEA1ES221  ECET16R2200S  ECEA1HS100  ECEA1HS100  ECEA1HS100  ECEA1HS100  ECEA1HS100	Z401, 40:  TR.  Tr1, 2  Tr3, 4  Tr7, 8  Tr9, 10, 1  Tr13, 14,  Tr21, 22  Tr23, 24,  Tr29, 30  Tr31  Tr32  Tr33	2 A AN	QCR0011  ISISTORS 2SA721 2SC945 12 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 26, 27, 28 2SC945 2SC1383 2SC945 2SC1847 2SC1846	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D203×2, D205×2 D301, 30 D305 D306 D307 D308 D401 D402	20-	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA1190 0A90M MA1082 4×2 1S2473 0A91LF 1S2473 0A91 MY121 MA1068 MA150 MA1068			S1, 2 S3, 4, 5, 6, S401 S402 A S501, 502, 1 S507, 508 PL501, 502 PL505 F401 A	QL QS QS QS XAA XAA XE
	A A A	ECEA50ZR33  ECEA1HS100  ECFWD104MXY  ECEA25Z4R7  ECEA1HS100  ECCD1H101K  ECEA1ES470  ECEA1ES470  ECEA1ES331  ECET35R2200S  ECEA1VS101  ECEA1ES221  ECET16R2200S  ECEA1HS100  ECEA1ES321	TR.  Tr1, 2 Tr3, 4 Tr7, 8 Tr9, 10, 1 Tr13, 14, Tr21, 22 Tr23, 24, Tr29, 30 Tr31 Tr31 Tr32 Tr33 Tr34	2 A A 11, 15, 25,	QCR0011  ISISTORS 2SA721 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 266, 27, 28 2SC945 2SC1383 2SC647 2SC1846 2SA564	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D202×2 D203×2 D203×2 D305, 30  D305 D306  D307 D308 D401 D402 D403	20-	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA190 0A90M MA1082 4×2 1S2473 0A91LF 1S2473 303, 304 0A91 MV121 MA150 MA150 S12473 S1324			S1, 2 S3, 4, 5, 6, S401	QL QS 7 QS QS QS XA
303, 304, 304, 305, 306, 307, 308, 307, 308, 307, 308, 310, 311, 312, 313, 314, 312, 314, 315, 316, 316, 316, 316, 316, 316, 316, 316	A A	ECEA50ZR33  ECEA1HS100  ECFWD104MXY  ECEA25Z4R7  ECEA1HS100  ECCD1H101K  ECEA1ES470  ECEA1ES470  ECEA1HS100  ECEA1ES331  ECET35R2200S  ECEA1VS101  ECEA1ES221  ECET1GR2200S  ECEA1HS100  ECEA1HS100  ECEA1HS201  ECEA1HS200S  ECEA1HS100  ECEA1HS100  ECEA1HS100  ECKOIH10ZKB  ECET25R4700S	Z401, 40:  TR.  Tr1, 2  Tr3, 4  Tr7, 8  Tr9, 10, 1  Tr13, 14,  Tr21, 22  Tr23, 24,  Tr29, 30  Tr31  Tr32  Tr33	2 A A 11, 15, 25,	QCR0011  ISISTORS 2SA721 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 2SC945 2SC1383 2SC945 2SC1383 2SC945 2SC1383 2SC945 2SC1384 2SC945 2SC1384 2SC945 2SC1384 2SC945 2SC1384 2SC945 2SC1846 2SC1846 2SC1846 2SC846	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D203×2, D205×2 D206×2 D301, 30 D305 D306 D307 D308 D401 D402 D403 D404	20.	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA1190 0A90M MA1082 4×2 1S2473 0A91LF 1S2473 1S2473 1S2473 1S2473 1S2473 1S2473 1S2473 1S2473 1S2473 1S2473 1S2473 1S2473 1S2473 MA1068			S1, 2 S3, 4, 5, 6, S401 S402 S501, 502, 9 PL505  F401 F402 F403, 404	QL QS 7 QS QS QS XA XA XE
303, 304, 304, 305, 306, 306, 306, 306, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 316, 317, 318, 319, 310, 310, 310, 310, 310, 310, 310, 310	A A A A A	ECEA50ZR33  ECEA1HS100  ECFWD104MXY  ECEA25Z4R7  ECEA1HS100  ECCD1H101K  ECEA1ES470  ECEA1HS100  ECEA1HS331  ECET35R2200S  ECEA1HS100  ECEA1ES221  ECET16R2200S  ECEA1HS100  ECKD1H102KB  ECECEA1HS100  ECKD1H102KB  ECET25R4700S  ECEA1AS472	TR.  Tr., 2 Tr3, 4 Tr7, 8 Tr9, 10, 1 Tr13, 14, Tr21, 22 Tr23, 24, Tr29, 30 Tr31 Tr32 Tr33 Tr34 Tr35, 201	2 A A 11, 15, 25,	QCR0011  ISISTORS 2SA721 2SC1327 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 26, 27, 28 2SC1383 2SC945 2SC1383 2SC945 2SC1847 2SC1846 2SA564 202×2 2SC945	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D203×2, D205×2 D301, 30  D305 D306 D307 D308 D401 D402 D403 D404 D405	20·	504, 505 M53200P DN835 AN640F AN660 M58432P ICODES MA150 MA1190 0A90M MA1082 4×2 1S2473 0A91LF 1S2473 0A91LF 1S2473 0A91LF 1S2473 T			S1, 2 S3, 4, 5, 6, S401	QL QS 7 QS QS QS QS XA XA XA XB
303, 304, 304, 305, 306, 307, 308, 307, 308, 309, 310, 312, 313, 314, 315, 316, 317, 318, 319, 319, 319, 319, 319, 319, 319, 319	A A A A	ECEA50ZR33  ECEA1HS100  ECFWD104MXY  ECEA25Z4R7  ECEA1HS100  ECCD1H101K  ECEA1ES470  ECEA1HS100  ECEA1ES331  ECET35R2200S  ECEA1WS101  ECEA1ES221  ECET16R2200S  ECEA1HS100  ECEA1HS100  ECEA1ES21  ECET16R2200S  ECEA1HS100  ECEA	TR.  Tr1, 2 Tr3, 4 Tr7, 8 Tr9, 10, 1 Tr13, 14, Tr21, 22 Tr23, 24, Tr29, 30 Tr31 Tr32 Tr33 Tr34 Tr35, 201 Tr203×2	2 A A 11, 15, 25,	QCR0011  ISISTORS 2SA721 2SC945 22 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 2SC, 27, 28 2SC945 2SC1383 2SC945 2SC1847  2SC1846 2SA564 202×2 2SC945 2SC1845 2SC945 2SC1840	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D202×2 D203×2 D205×2 D301, 30  D305 D306  D307 D308 D401 D402 D403 D404 D405 D406	20.	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA1190 0A90M MA1082 4×2 IS2473 0A91LF IS2473 303, 304 0A91 MV121 MA1068 MA150 IS2473T RVD10DC4R MA1051 RVD10DC4R RVD10DC4R RVD10DC4R			S1, 2 S3, 4, 5, 6, S401	QL QS 7 QS QS QS XA XA XE
303, 304, 304, 305, 306, 307, 308, 307, 308, 309, 310, 312, 313, 314, 315, 316, 317, 318, 319, 319, 319, 319, 319, 319, 319, 319	A A A A A A A A A A A A A A A A A A A	ECEA50ZR33  ECEA1HS100  ECFWD104MXY  ECEA25Z4R7  ECEA1HS100  ECCD1H101K  ECEA1ES470  ECEA1ES470  ECEA1HS100  ECEA1ES331  ECET35R2200S  ECEA1VS101  ECEA1ES221  ECEA1HS200  ECEA1HS100  ECEXIGR2200S  ECEA1HS100  ECKD1H10ZKB  ECET25R4700S  ECEA1HS100  ECKD1H10ZKB  ECET25R4700S  ECEA1HS100  ECKD1H10ZKB  ECECYM05473KZ  33, 504, 505, 506, 506	TR.  Tr1, 2 Tr3, 4 Tr7, 8 Tr9, 10, 1 Tr13, 14, Tr21, 22 Tr23, 24, Tr29, 30 Tr31 Tr34 Tr35, 201 Tr203×2 Tr204×2	2 A A 11, 15, 25,	QCR0011  ISISTORS 2SA721 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 266, 27, 28 2SC945 2SC1383 2SC1847 2SC1846 2SA564 202×2 2SC945 2SK30AD 2SC945	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D203×2, D205×2 D206×2 D301, 30  D305 D306 D307 D308 D401 D402 D403 D404 D405 D406 D407	20·	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA1190 0A90M MA1082 4×2 1S2473 0A91LF 1S2473 103, 304 0A91 MV121 MA1068 MA150 1S2473T RVD10DC4R RVD10DC4R MA1051 RVD10DC4R MA1051 RVD10DC4R MA1051 RVD10DC4R MA1050			S1, 2 S3, 4, 5, 6, S401	QL QS 7 QS QS QS QS XA XA XA XB
303, 304, 304, 305, 306, 307, 308, 307, 308, 309, 310, 312, 313, 314, 315, 316, 317, 318, 319, 319, 319, 319, 319, 319, 319, 319	A A A A A A A A A A A A A A A A A A A	ECEA50ZR33  ECEA1HS100  ECFWD104MXY  ECEA25Z4R7  ECEA1HS100  ECCD1H101K  ECEA1ES470  ECEA1HS100  ECEA1ES331  ECET35R2200S  ECEA1WS101  ECEA1ES221  ECET16R2200S  ECEA1HS100  ECEA1HS100  ECEA1ES21  ECET16R2200S  ECEA1HS100  ECEA	TR.  Tr.1, 2 Tr.3, 4 Tr.7, 8 Tr.9, 10, 1 Tr.13, 14, Tr.21, 22 Tr.23, 24, Tr.29, 30 Tr.31 Tr.32 Tr.33 Tr.34 Tr.35, 201 Tr.203×2 Tr.204×2 Tr.205×2 Tr.205×2	2 <b>AN</b> 15, 25,	QCR0011  ISISTORS 2SA721 2SC945 12 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 26, 27, 28 2SC945 2SC1383 2SC945 2SC1383 2SC945 2SC1847 2SC1846 2SA564 202×2 2SC945 2SC345	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D202×2 D203×2 D205×2 D301, 30  D305 D306  D307 D308 D401 D402 D403 D404 D405 D406	20·	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA1190 0A90M MA1082 4×2 IS2473 0A91LF IS2473 303, 304 0A91 MV121 MA1068 MA150 IS2473T RVD10DC4R MA1051 RVD10DC4R RVD10DC4R RVD10DC4R			S1, 2 S3, 4, 5, 6, S401	QL QS 7 QS QS QS QS XA XA XA XB
303, 304, 304, 305, 306, 306, 306, 306, 306, 306, 306, 306	A A I	ECEA50ZR33 ECEA1HS100 ECFWD104MXY ECEA25Z4R7 ECEA1HS100 ECCD1H101K ECEA1ES470 ECEA1HS100 ECEA1ES331 ECET35R2200S ECEA1HS100 ECEA1HS100 ECEA1ES221 ECET16R2200S ECEA1HS100 ECKD1H10ZKB ECET25R4700S ECEA1AS472 ECQM05473KZ 33, 504, 505, 506 ECKD1H103ZF	TR.  Tr1, 2 Tr3, 4 Tr7, 8 Tr9, 10, 1 Tr13, 14, Tr21, 22 Tr23, 24, Tr29, 30 Tr31 Tr32 Tr33 Tr34 Tr35, 201 Tr203×2 Tr204×2 Tr204×2 Tr206×2, Tr206×2,	2 A A A A A A A A A A A A A A A A A A A	QCR0011  ISISTORS 2SA721 2SC945 22C644 16, 17, 18, 19, 20 2SC945 2SC1383 26, 27, 28 2SC945 2SC1383 26, 27, 28 2SC945 2SC1847  2SC1846 2SA564 202×2 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D202×2 D203×2 D305 D306  D307 D308 D401 D402 D403 D404 D405 D406 D407 D408	20·	504, 505 M53200P DN835 AN640F AN660 M58432P IODES MA150 MA1190 0A90M MA1082 4×2 1S2473 0A91LF 1S2473 303, 304 0A91 MV121 MA1068 MA150 1S2473T RVD10DC4R MA1051 RVD10DC4R RVD10DC4R RVD10DC4R RVD10DC4R MA150 MA150 MA150 MA150 MA150 MA150 MA150 MA150 MA150 MA150 MA1056			S1, 2 S3, 4, 5, 6, S401	QL QS 7 QS QS QS QS XA XA XA XB
303, 304, 304, 305, 306, 306, 306, 306, 306, 307, 308, 309, 310, 311, 312, 311, 312, 313, 314, 315, 316, 317, 318, 319, 319, 319, 319, 319, 319, 319, 319	A A I	ECEA50ZR33  ECEA1HS100  ECFWD104MXY  ECEA25Z4R7  ECEA1HS100  ECCD1H101K  ECEA1ES470  ECEA1ES470  ECEA1ES331  ECET35R2200S  ECEA1S331  ECET35R2200S  ECEA1WS101  ECEA1ES221  ECET16R2200S  ECEA1HS100  ECKD1H10ZKB  ECET25R4700S  ECEA1MS472  ECEAMO5473KZ  03, 504, 505, 506  ECKD1H103ZF  ECEA1AS470	TR.  Tr1, 2 Tr3, 4 Tr7, 8 Tr9, 10, 1 Tr13, 14, Tr21, 22 Tr23, 24, Tr29, 30 Tr31 Tr32 Tr33 Tr34 Tr35, 201 Tr203×2 Tr204×2 Tr204×2 Tr206×2, Tr206×2,	2 A A A A A A A A A A A A A A A A A A A	QCR0011  ISISTORS 2SA721 2SC945 12 2SC644 16, 17, 18, 19, 20 2SC945 2SC1383 266, 27, 28 2SC945 2SC1383 2SC945 2SC1847 2SC1846 2SA564 202×2 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D203×2, D205×2 D301, 30  D305 D306 D307 D308 D401 D402 D403 D404 D405 D406 D407 D408 D409	20.	504, 505 M53200P D0N835 AN640F AN660 M58432P HODES MA150 MA1190 0A90M MA1082 4x2 1S2473 303, 304 0A91 MY121 MA168 MA150 1S2473T RVD10DC4 RVD10DC4R MA1051 RVD10DC4R MA1051 RVD10DC4R MA1056 RVD10DC4R MA150 RVD10DC4R MA1056 RVD10DC4R MA1056 RVD10DC4R MA1056 RVD10DC4R MA1056			S1, 2 S3, 4, 5, 6, S401	QL QS 7 QS QS QS QS XA XA XA XB
303, 304, 304, 305, 306, 306, 306, 306, 306, 306, 306, 306	A A I	ECEA50ZR33 ECEA1HS100 ECFWD104MXY ECEA25Z4R7 ECEA1HS100 ECCD1H101K ECEA1ES470 ECEA1HS100 ECEA1ES331 ECET35R2200S ECEA1HS100 ECEA1HS100 ECEA1ES221 ECET16R2200S ECEA1HS100 ECKD1H10ZKB ECET25R4700S ECEA1AS472 ECQM05473KZ 33, 504, 505, 506 ECKD1H103ZF	TR.  Tr1, 2 Tr3, 4 Tr7, 8 Tr9, 10, 1 Tr13, 14, Tr21, 22 Tr23, 24, Tr29, 30 Tr31 Tr32 Tr33 Tr34 Tr35, 201 Tr203×2 Tr204×2 Tr204×2 Tr206×2, Tr206×2,	2 A A A A A A A A A A A A A A A A A A A	QCR0011  ISISTORS 2SA721 2SC945 22C644 16, 17, 18, 19, 20 2SC945 2SC1383 26, 27, 28 2SC945 2SC1383 26, 27, 28 2SC945 2SC1847  2SC1846 2SA564 202×2 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945 2SK30AD 2SC945	IC502, 50 IC506 IC701 IC702 IC703  D1, 2, 3 D5, 6 D201×2 D202×2 D202×2 D203×2 D305 D306  D307 D308 D401 D402 D403 D404 D405 D406 D407 D408	20·	504, 505 M53200P D0N835 AN640F AN660 M58432P HODES MA150 MA1190 0A90M MA1082 4x2 1S2473 303, 304 0A91 MV121 MA168 MA150 1S2473T RVD10DC4 RVD10DC4R MA1051 RVD10DC4R MA1050 MA1056 RVD10DC4R			S1, 2 S3, 4, 5, 6, S401	QL QS 7 QS QS QS QS XA XA XA XB

Ref. No.	Part No.	Part Name & Description
	TRANS	SFORMERS
T1, 2	OLT2D26X	Headphone Transformer
T401 🖪	△ QLPA40EMX	Power Transformer
	ted Kingdom.	
T401 🔟	△ QLPD29EMX	n
<b>∗</b> For All	European areas except	United Kingdom.
	9	COILS
L1. 2	OLM9Z4K	MPX Filter
L3, 4, 5, 6		
, ,, ,, ,	0L0X0331W	3mH Coil
L9. 10	QLQX0731W	7mH Coil
L11	QLQX073111 QLB0189	Bias Oscillator Coil
L12	QLQX2421Y	Choke Coil
L401, 601		55
0., 50;	QLQZ1014D	,,
	1	
L801, 802		1
	QLQX0331W	Peaking Coil
	sw	TTCHES
S1, 2	QSS7203	Slide Switch
		(Record/Playback Selector)
S3, 4, 5, 6	5, 7	,
	QST4311	Lever Switch
S401	△ 0SW2214	Push Switch (Power ON/OFF)
	△ QSR1407	Voltage Select Switch
	, 503, 504, 505, 506	
	QSW1111H	Control Key Switch
S507, 508		
	QSM0067	Micro Switch
	PILO	T LAMPS
PL501, 50	12, 503	
	XAMQ34S600W	Pilot Lamp
PL505	XAMQ41S400	"
	F	USES
-401	_	i .
	∆ XBAQ0009	Mini Fuse (800 mAT)
	△ XBAQ0004	Mini Fuse (1AT)
F403, 404	1	
	∆ XBAQ0010	Mini Fuse (1.6AT)
F405	△ XBAQ0006	Mini Fuse (315 mAT)

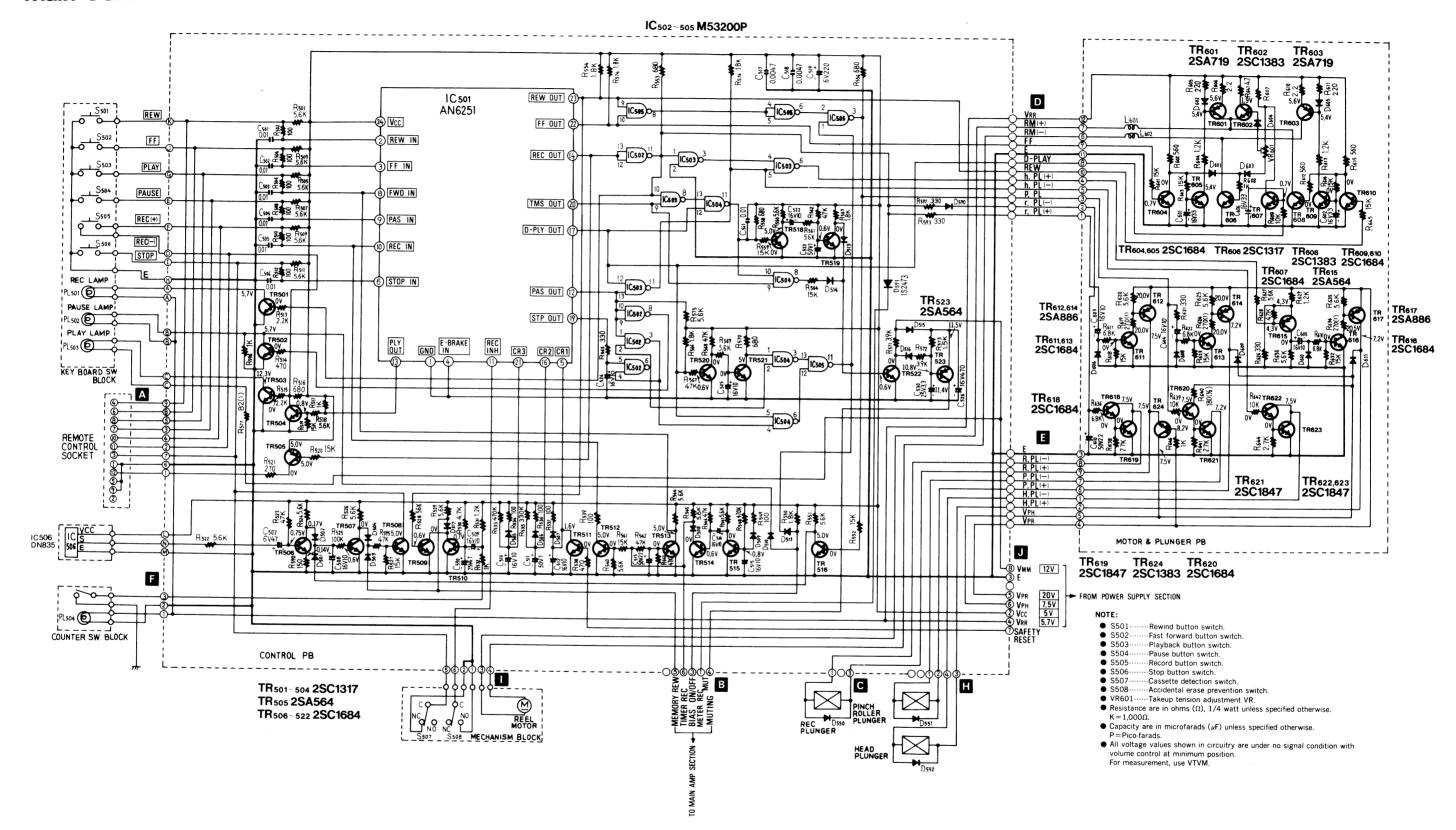
### **SCHEMATIC DIAGRAM**

**Main Control Section** 

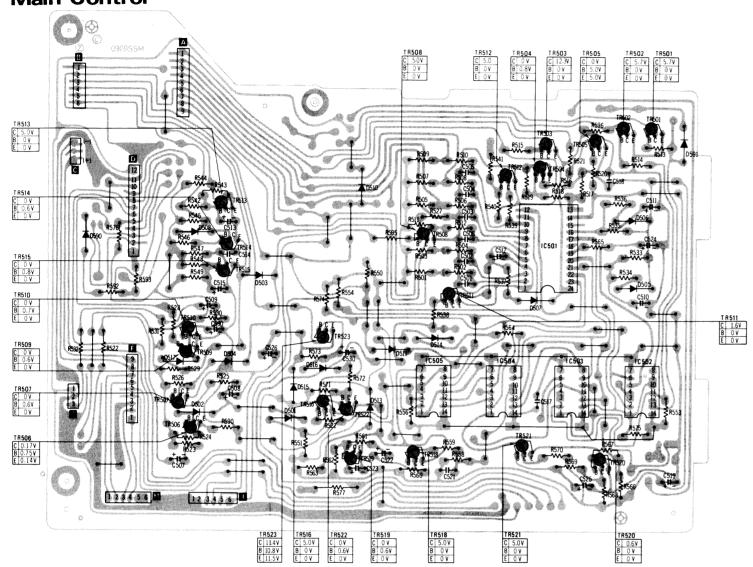


### **SCHEMATIC DIAGRAM**

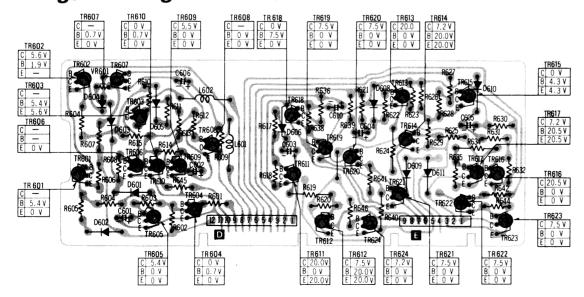
### **Main Control Section**



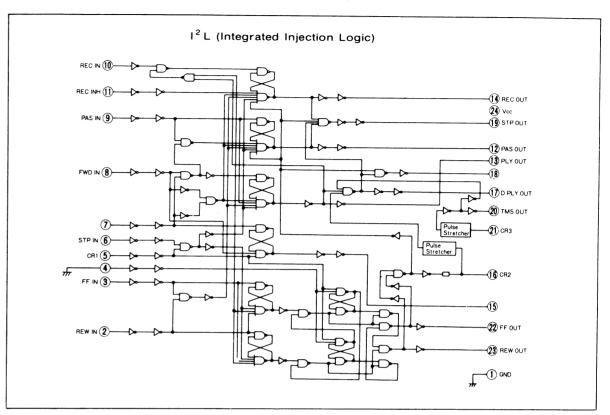
### CIRCUIT BOARD Main Control



### **Plunger Driving**



### IC (AN6251) equivalent circuitry

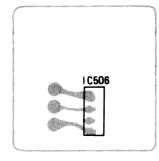


### Relationship of each operation mode with input/output

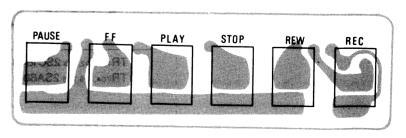
				IC (A	N6251)						
Operation mode		Output terminal									
	Input terminal	(12) PAUSE OUT	(13) PLAY OUT	(14) REC OUT	(17) D-PLAY OUT	(19) STOP OUT	(20) TMS OUT	(22) FF OUT	(23) REW OUT		
REW	(2) REW IN	$\Theta$	$\Theta$	$\Theta$	Ð	$\Theta$	$\Theta$	$\Theta$	Û		
FF	(3) FF IN	$\oplus$	Ð	$\Theta$	$\Theta$	$\Theta$	$\Theta$	©	$\Theta$		
PLAY	(8) FWD IN	$\oplus$	(C)	$\Theta$	• ©	$\Theta$	$\Theta$	$\Theta$	$\Theta$		
PAUSE	(9) PAS IN	0	$^{\oplus}$	$\Theta$	$^{\odot}$	$\Theta$	$\Theta$	$^{\oplus}$	$^{\oplus}$		
REC	(10) REC IN	$\Theta$	$\Theta$	©	$^{\oplus}$	$\Theta$	$\Theta$	$\Theta$	$^{\odot}$		
STOP	(6) STOP IN	$\Theta$	$\Theta$	$\Theta$	$\Theta$	Û	$\Theta$	$^{\oplus}$	$\Theta$		

\* Doesn't become "L" immediately even if playback button pushed; becoming "L" after a slight delay.

### Hall IC



### **Control Key Switch**



### **SCHEMATIC DIAGRAM**

TR701,702,703 2SC1846 TR707 2SC1318

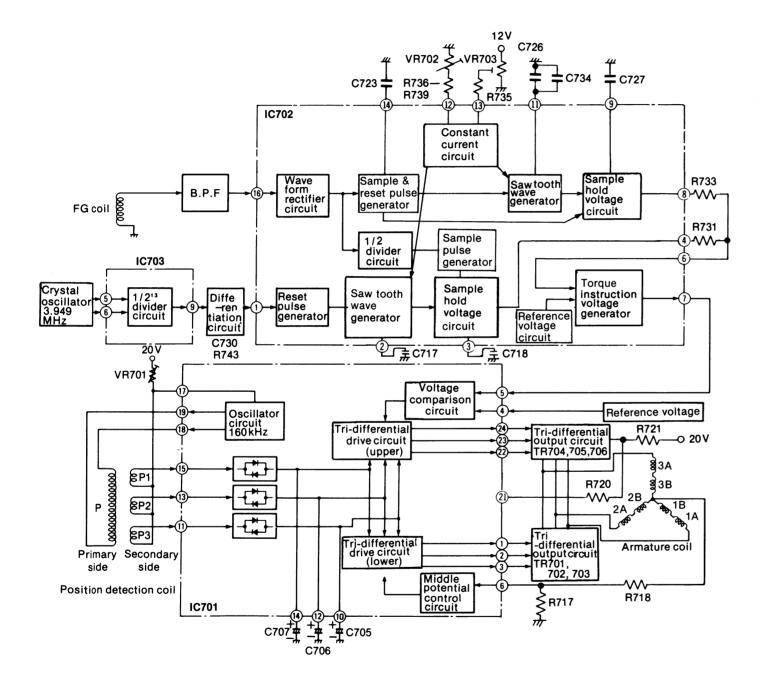
TR704,705,706 2SA885

Capstan Driving Section TR710 2SC1318 **∨**CC **20**V ST-1 - (6) - (6) - (9) - (1) - (1) - (1) - (1) IC702 AN660 IC703 M58432P around 7.8V T.P P-L FG 🖁 CAPSTAN MOTOR R719 10(1/2) osc PV SET VR701 5K(B) P-V around 15V P1 <u>769 39 69 69 69 69 69 69 69 69 69</u> 69 AP3 AP2 AP1 CS PC VOC OSC POOM GND P1 C1 P2 **~~~~~~**@ 2B 2A | 3 A2 IC701 AN640F AN1 AN2 AN3 EC ECR AC ED ER EN C3 P3 C2 VR701 ····· Position detection coil output level adjustment VR.
 VR702 ····· Phase lock point adjustment VR. VR703 ---- Standard DC power voltage adjustment VR. Resistance are in ohms  $(\Omega)$ , 1/4 watt unless specified otherwise.  $K=1,000\Omega$ . Capacity are in microfarads (μF) unless specified otherwise. P=Pico-farads. All voltage values shown in circuitry under no signal condition with volume control at minimum position.
 For measurement, use VTVM. 3

around 0.9V

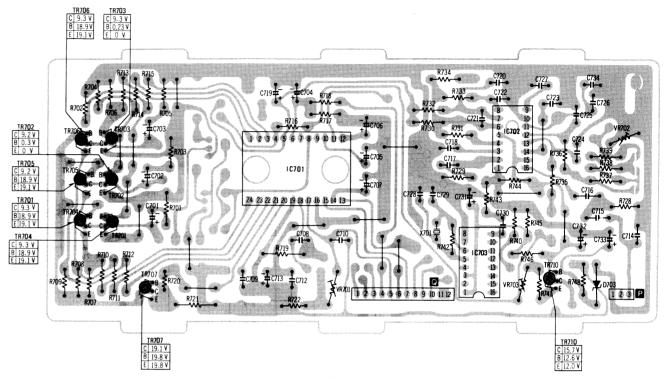
### **BLOCK DIAGRAM**

### **Capstan Motor Section**

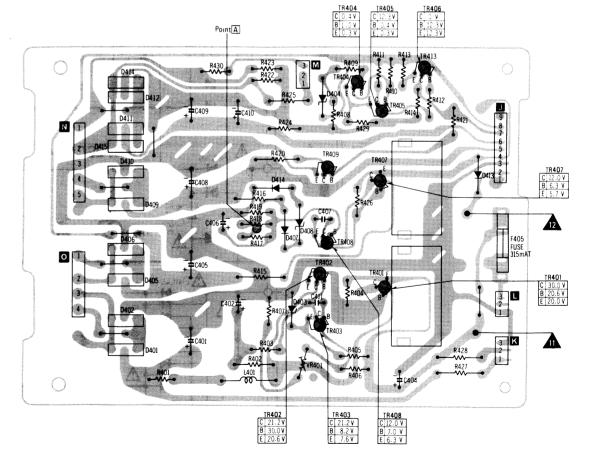


### CIRCUIT BOARD

### **Capstan Driving**



### **Power Supply**

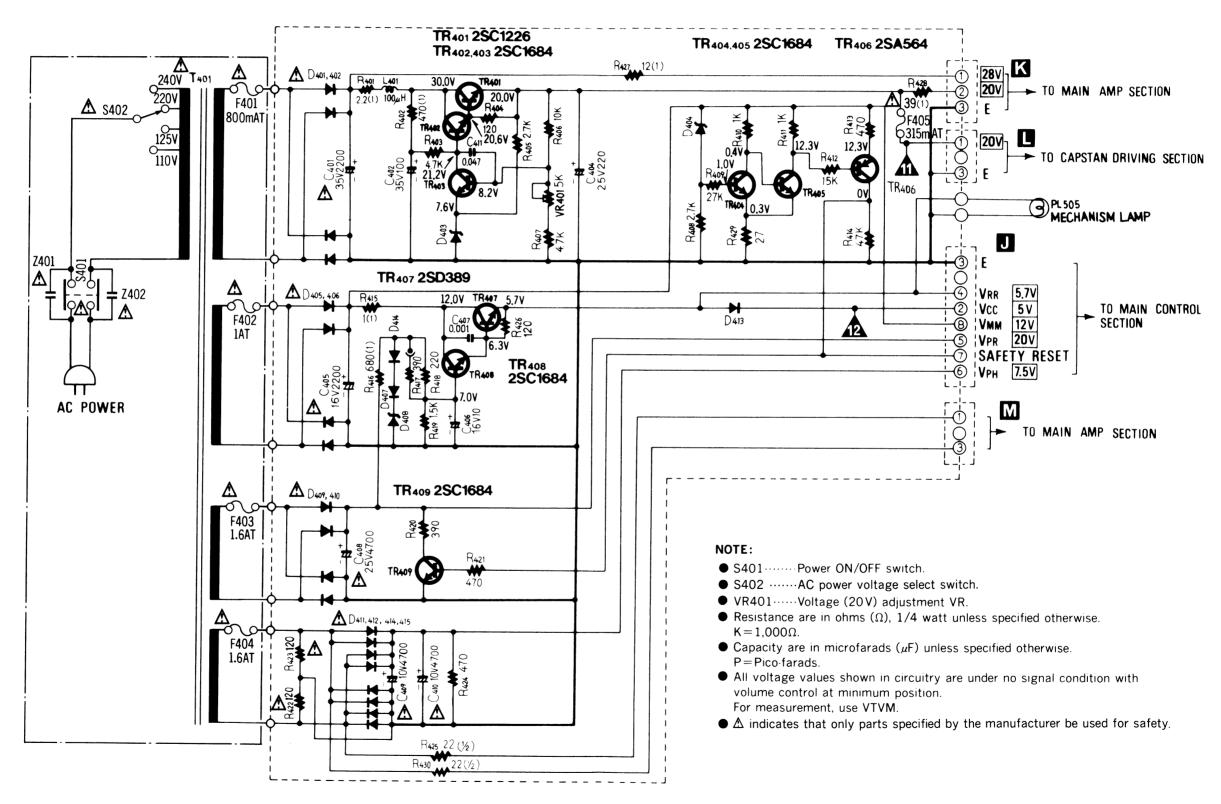


#### NOTE:

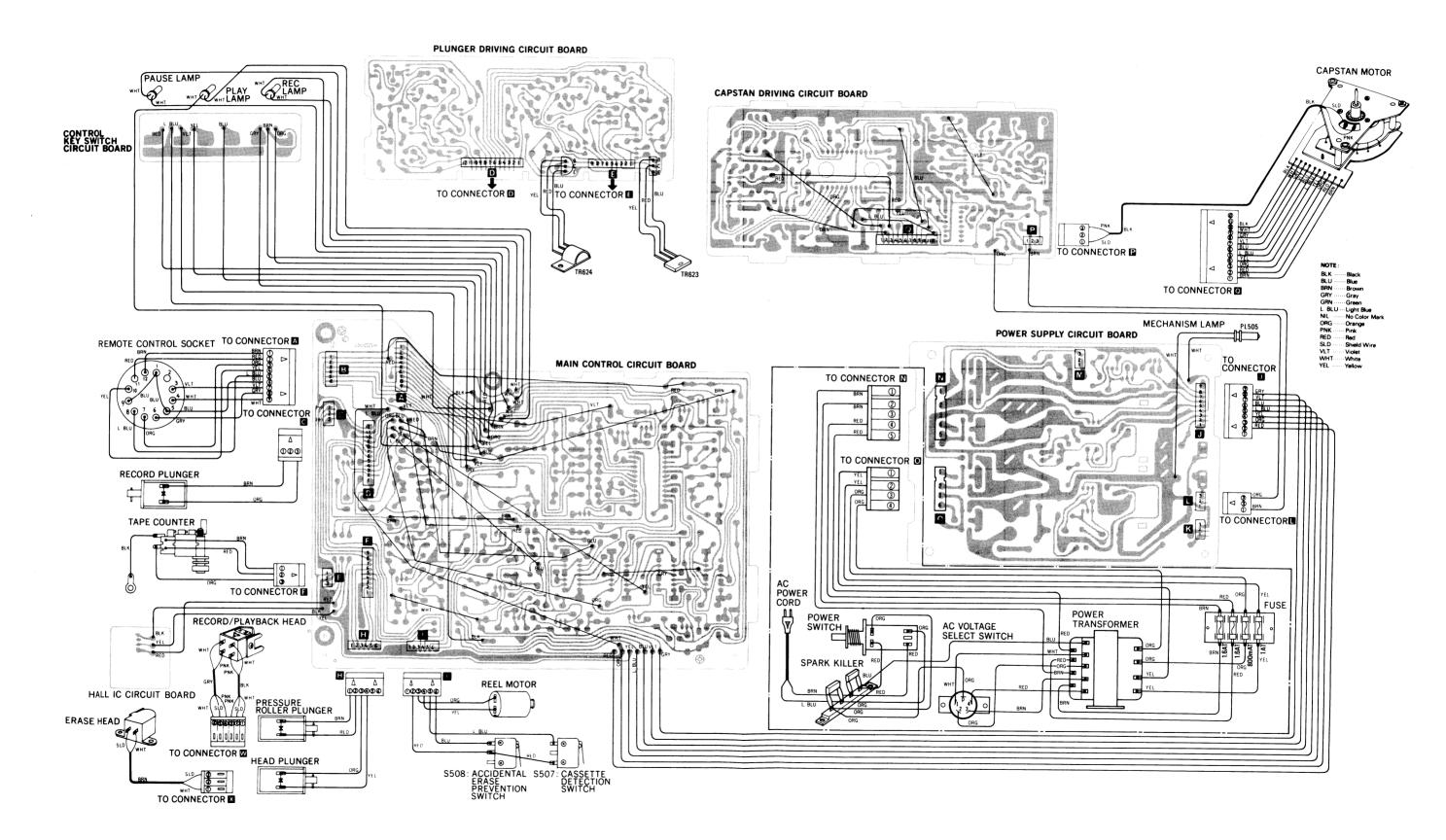
The circuit shown in red on the conductor is B circuit. Values indicated in \_\_\_\_ are DC voltage between the chassis and electrical parts.

### **SCHEMATIC DIAGRAM**

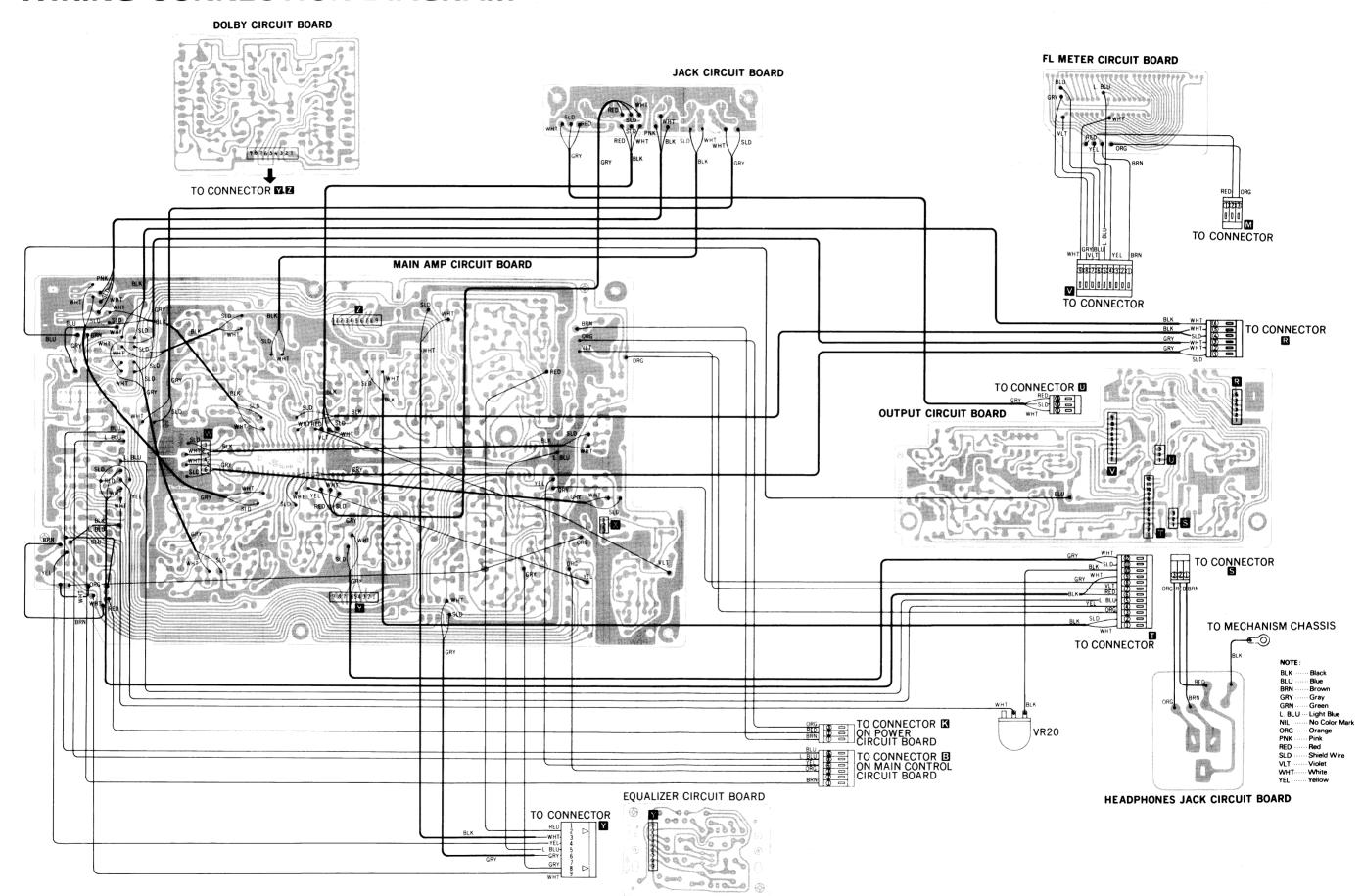
### **Power Supply Section**



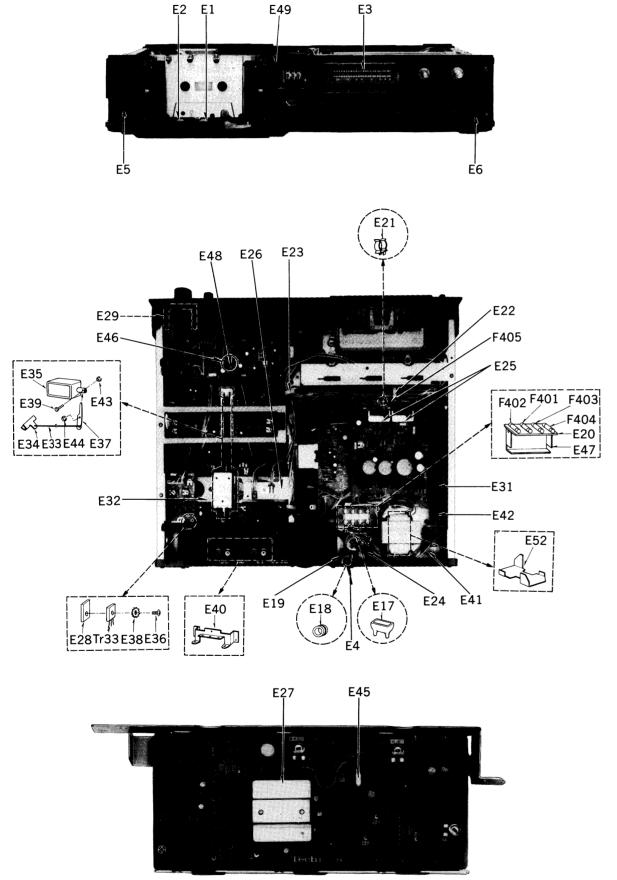
### WIRING CONNECTION DIAGRAM

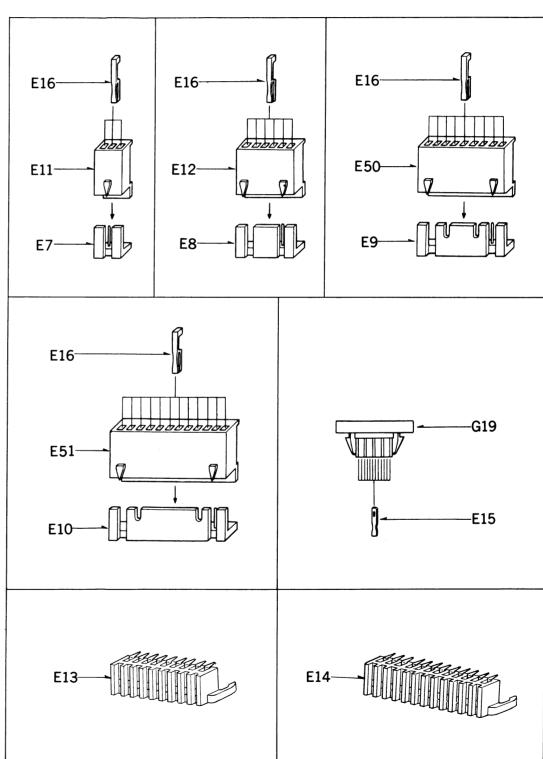


### WIRING CONNECTION DIAGRAM



### **ELECTRICAL PARTS LOCATION**

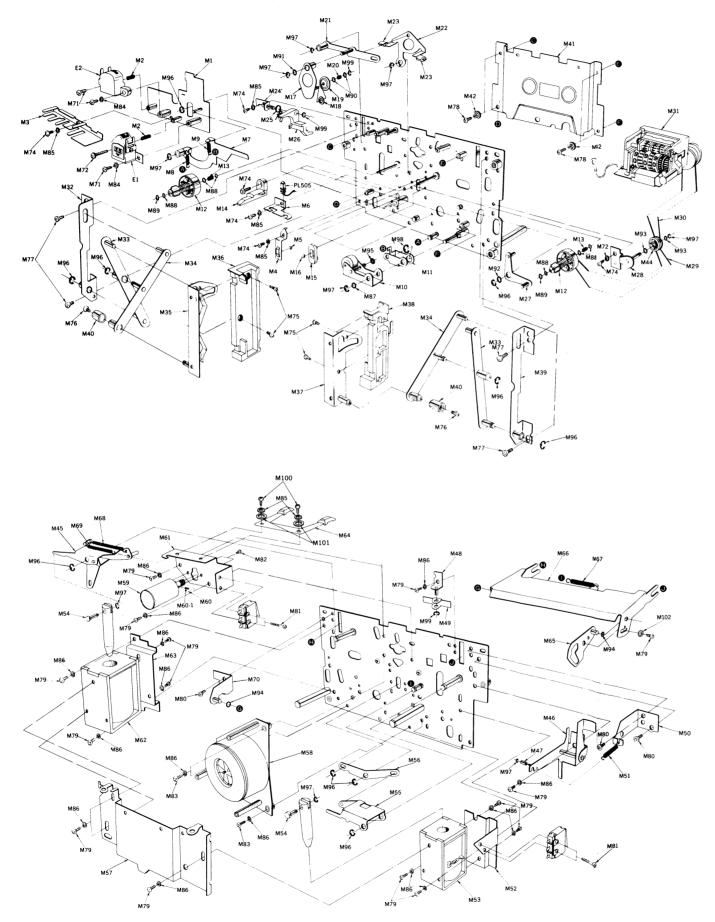




NOTE: ▲ indicates that only parts specified

Ref. No.		Part No.	Part Name & Description
	T	ELECTI	RICAL PARTS
E1		WY1402BZ	Record/Playback Head
E2		QWY2133Z	Erase Head
E3		QSLS002RF	Fluorescent Level Meter
E4 D		QFC1204M	AC Power Cord
			ot United Kingdom.
		QFC1205M	"
	ited	Kingdom.	l.,
E5 E6		QJA0249H OJA0444H	Headphones Jack
E7		QJR0444H QJP1921TN	Microphone Jack 3 Pin Post
E8	1	OJP1922TN	6 Pin Post
E9		OJP1923TN	9 Pin Post
E10		OJP1924TN	12 Pin Post
		Q31 1324111	12 1 11 7 030
E11	İ	OJS1921TN	3 Pin Socket
E12		QJS1922TN	6 Pin Socket
E13		QJS1923TNL	9 Pin Socket
E14		QJS1924TNL	12 Pin Socket
E15		QJT1053	Contact-A
E16		QJT1054	Contact-B
E17		QTW1118	Spark Killer Cover
E18		OBJ1425	AC Cord Bushing
E19		QTD1164	AC Cord Clamper
E20		QTF1039	Fuse Holder
		Q11 1033	Tuse Holder
E21		OTF1054	Fuse Holding Terminal
E22		OTD1244XN	Wire Clamper-S
E23		QTD1250XN	Wire Clamper-L
E24		QJT4017	4 Pin Terminal
E25		QTH1088	Heat Sink
E26		QMF1980	"
E27		QTH1136	"
E28		QTH1118	"
E29		QTS1423	Shield Plate
E31		QXR0385	Power Switch Rod Assembly
		"Black Type"	
		QXR0424	"
		"Silver Type"	
			l
E32		QXA0661	Record/Playback Angle Assembly
E33		QBS1116	Record/Playback Rod
E34		QML3283	Record/Playback Lever
E35 E36	- 1	QME0141	Record Plunger
E37		XSN26+8	Screw ⊕2.6×8
E38		QML3281	Record Lever
39		XWC26 0MN2095	Lock Washer Plunger Pin
40		QMA3300	Jack Angle
41		QMA3297	Power Switch Angle
			Tones onto
42	- 1	QKJ0242	Сар
43		XUC25FT	Stop Ring 2.5 ¢
44		XUC3FT	Stop Ring 3¢
45		QZE0012	Crystal
46		QJT1040	Contact
47		QMA3404	Fuse Angle
48		QJT1067	Post
49		QJT0015	Lug Terminal
50		QJS1923TN	9 Pin Housing
51		QJS1924TN	12 Pin Housing
52		QMA3296A	Transformer Angle

### **EXPLODED VIEWS**



Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
	MECHA	NICAL PARTS	M60-1	XXE26D3FZ	Set Screw
			M61	QMA3313	Motor Angle
M1	QXK2029	Head Base Plate Assembly	M62	QXE0243	Plunger
M2	QBCA0008	Head Spring	M63	QMA3312	Plunger Angle-R
M3	QTD1261	Head Wires Clamper	M64	QXH0276	Cassette Holding Cushion
M4	QBP1733	Steel Ball Holder-A	M65	QXL1173	Lock Lever Assembly
M5	QDK1012	Steel Ball 2.5 p	M66	QML3282	Connector Lever
M6	QMA3321	Lamp Angle	M67	QBT1553	Holder Spring-R
M7	QXL1168	Pressure Roller Lever Assembly	M68	QBT1405	Lever Spring
M8	QBT1490	Eject Lever Spring	M69	1 7	
M9	QBT1441	Pressure Roller Spring	MIOS	QBT1713	Record Spring
M10	QXL1166	Pressure Roller Assembly	1470	0440700	la
		Trace in the second of	M70	QXA0702	Connector Angle-R Assembly
M11	QML3267	Pressure Roller Lever-1	M71	XSN2+6	Screw ⊕2×6
M12	QXD0087	Reel Table	M72	QHQ1211	Head Adjustment Screw
M13		Back Tension Spring	M74	XSN26+4	Screw ⊕2.6×4
	QBC1272		M75	XSN26+4BV	Screw ⊕2.6×4
M14	QMG0054	Cassette Guide	M76	XSS2+4	Screw ⊕2×4
M15	QMH2009	Steel Ball Holder-B	M77	XSS3+4S	Screw ⊕3×4
M16	QDK1006	Steel Ball 3 ø	M78	OH01185	Step Screw
M17	QXL1189	Idler Lever Assembly	M79	XSN3+5S	Screw (+)3×5
M18	QBF1260	Idler Felt	M80	XSS3+6S	Screw ⊕3×5
M19	QXI0101	Idler Assembly	1,1100	A333 F03	2016# (J) 2 0
M20	QBC1308	Idler Spring	MO1	01101100	Ct C
	(	Tales op mg	M81	QHQ1182	Step Screw
M21	QXL1164	Brake Lever Assembly	M82	XSN2+3	Screw ⊕2×3
M22	QML3273	Brake	M83	XSN3+8S	Screw ⊕3×8
M23	OBG1132		M84	XWA2B	Spring Washer 2φ
		Stopper Rubber	M85	XWA26B	Spring Washer 2.6 ¢
M24	QXA0714	Detection Angle Assembly	M86		
M25	QBN1573	Detection Lever Spring		XWA3B	Spring Washer 3φ
M26	QML3285	Detection Lever	M87	QBW2016	Poly Washer
M27	QXL1172	Lever-A Assembly	M88	QBW2012	"
M28	QXA0712	Pulley Angle Assembly	M89	QBW2008	"
M29	QDB0218	Counter Belt-A	M90	QBW2015	"
M30	QDB0234	Counter Belt-B			
	455555	Souther Bolt B	M91	OBW2017	"
M31	QXC0021	Tape Counter Assembly	M92	QBW2018	n n
	"Black Type"	Tape Counter Assembly	M93	OBW2016	n
			M94	QBW2019	"
	QXC0029	"	M95	QBK7123	Fiber Washer
	"Silver Type"		M96	1.7	Stop Ring 3 ¢
M32	QXA0703	Angle-L Assembly	M97	XUC3FT	
M33	QXL1191	Link Lever-A Assembly		XUC25FT	Stop Ring 2.5 ¢
M34	QXL1190	Link Lever-B Assembly	M98	XUC5FT	Stop Ring 5 ¢
M35	QXA0706	Holder Angle-L Assembly	M99	XUC2FT	Stop Ring 2 ¢
M36	QMH2027	Cassette Holder-L	M100	XSN26+6	Screw ⊕2.6×6
M37	QXA0705	Holder Angle-R Assembly			
M38	QMH2028	Cassette Holder-R	M101	XWG26	Flat Washer
M39	QXA0704	Angle-R Assembly	M102	XWC3B	Lock Washer
M40	QKJ0245	Spacer-A	H	1	1
	1 -	1 '	1		
M41	QXH0286	Mechanism Cover	1		
142	QMZ1213	Spacer-B	1		
A43	QBP1135	Spring Washer	1		
144	QDP1753	Connection Pulley	1		
145	QXL1165	Lever-B Assembly	1		
146	QXL1188	Eject Lever Assembly	1		
147	ODP1758	Roller			
148	QXA0713	Angle Assembly	I		
149	, •	Release Lever	1		
- 1	QML3284		1		
<b>1</b> 50	QMA3314	Connector Angle	I		
		1			
<b>M</b> 51	QBT1753	Playback Lever Spring	1		
<b>1</b> 52	QMA3311	Plunger Angle-L	1		
153	QME0141	Plunger	I		
154	QMN2095	Plunger Pin	1		
155	QXL1171	Plunger Lever-L Assembly	1		
156	QML3276	Plunger Lever	1		
157			1		
	QMA3322	Reinforcement Angle	1		
158	QXK2010	Capstan Motor Assembly	1		
159	MKCN22AE5	Reel Motor	1		
160	QXP0574	Motor Pulley Assembly	1		

#### SPECIFICATIONS

Pressure of pressure roller	400±30gr
Wow and flutter: JIS  (Test tape QZZCWAT)	Less than 0.04% (WRMS)

